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Ibrahim Shah, PhD

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The Problem of Negative Interfaces in Stratigraphic Excavations: Two Case Studies from Swat

Luca M. Olivieri*

ISMEO/Ca' Foscari University of Venice, Italy.

Abstract: Old stratigraphic archaeology methods foresee a model where all the layers are sealed and easily recognisable, provided that they are correctly excavated. The presumed integrity of the physical sequence might instead hide gaps that remain unnoticed. Such gaps are the result of negative interventions, which generally did not leave evident traces, but whose existence can be reconstructed *ex post*. Such gaps, or 'negative interfaces', are of paramount importance for the reconstruction of the cultural sequence. The article illustrates these problematics through two cases from the direct fieldwork experience of the author, in two completely different contexts, at the sanctuary of Saidu Sharif I and at the urban site of Barikot, both in Swat.

Keywords: stratigraphy, negative interfaces, periodization, cultural sequence, Swat, Barikot, Saidu Sharif I.

Introduction

This article develops some ideas already presented in the fieldwork manual *Digging up* (Olivieri 2014, 2017a). It is also the ideal follow-up to a short essay on the interpretation of excavated data published in this journal in the recent past (Ibid. 2018). Some of these issues were also discussed in a contribution to a collection of essays in honour of Giovanni Leonardi (University of Padova), a pioneer of the conceptual analysis of complex stratigraphy (Ibid. 2017b).[1]

Terminology

By the term 'negative interface' archaeologists denote specific features that represent the surface of a physical absence or, in archaeologists' jargon, a 'gap'. While it looks like a contradiction in terms, if not a nonsense, in archaeology – as we will see – it is absence which sometimes makes history. Negative interfaces are like black holes in space: they look like a negation of activity, when in fact they represent the final result of the maximum possible emission of energy.

Let us start from the term 'negative'. In general, archaeological practice, a stratigraphic sequence is formed by minimal units referred to as 'Stratigraphic Units' or SUs. In practice every removal or destruction of a SU, or a series of SUs, creates a gap in the stratigraphic sequence which can be defined as negative. In a stratigraphic sequence each negative intervention, whether intentional (cuts, pits, ablations, etc.) or non-intentional (collapsed surfaces, eroded slopes, etc.), man-made or natural, should be recorded as an intrinsic part of the activities that represent the 'history' of an archaeological context, whether or not their limits are clearly identifiable. Each of these negative SUs should have its own stratigraphic unit number (SU) and find its place in a formalized sequence.

In stratigraphic flow charts this 'negative' evidence is recorded by the standard use of triangles (as opposed to circles and squares, used for layers and architectural features respectively) (see Olivieri 2014). For example, the razed surface of a collapsed structure should have its own stratigraphic unit number, and the cut of a foundation trench should be distinguished (number within triangle) from its filling, whether soil (number within circle) or structure (number within square) (see Fig. 1).

The term 'interface' refers to the space existing between two objects physically touching each other, regardless of how and to what degree they are stuck together. Such an interface exists between every SU, and interfaces can be both 'positive' and 'negative'. Take the case of a

* ✉ lucamaria.olivieri@unive.it

layer of beaten soil, whose upper surface has been exposed for some time, and, say, used as trampling surface, before being covered by an upper layer of abandonment. In this case the upper surface represents a 'positive' interface. It should be recorded as a unit in itself and should be given a number (inside a circle). The importance for the reconstruction of an assemblage is evident. In fact, there is an intrinsic difference between a coin found mixed 'inside' the earth of the layer forming the trampling surface, and a coin found 'on' its surface. Mortimer Wheeler provided a wonderful example of this problematic (Wheeler 1947: fig. 1) (see Fig. 11 below).

But suppose now that a SU shows extensive traces of weathering, water erosion, or the like. This can be easily explained when there are sloping layers. In such a case we have a 'negative' interface that should be recorded as a negative unit (as a triangle). Such areal negative interfaces may not be easy to recognize, particularly while digging narrow test trenches, but in the overall stratigraphic analysis, especially, they represent crucial information.

The discourse on negative interfaces originates in the debate inaugurated by Edward Harris in the second edition of his *Principles of archaeological stratigraphy* (Harris 1989): "These areas may be referred to as interfaces of destruction. They may be defined as abstract interfaces which record the areas of a given unit of stratification or period on a site which has been disturbed or destroyed by later excavation." (Ibid. 68).

Negative interfaces can be the result of actions which did not leave taphonomic traces. However, as it happened in our cases, they can be recognized *ex post* (after the excavation, during the study of the evidence).

The implications of these interfaces for the periodization and reconstruction of the cultural sequence can be extremely important for archaeologists. Harris noted that "it has been traditional practice to ignore the period interface as a true period on a site [...] The interfacial periods,

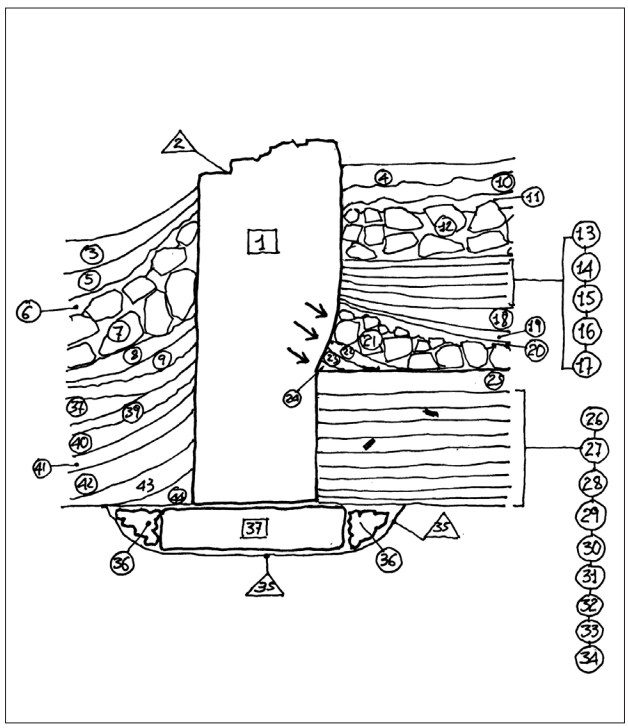

Figure 1. An ideal representation of the stratigraphic complexity: negative, positive and structural SUs (Drawings by F. Martore; after Olivieri 2014; Courtesy ISMEO).

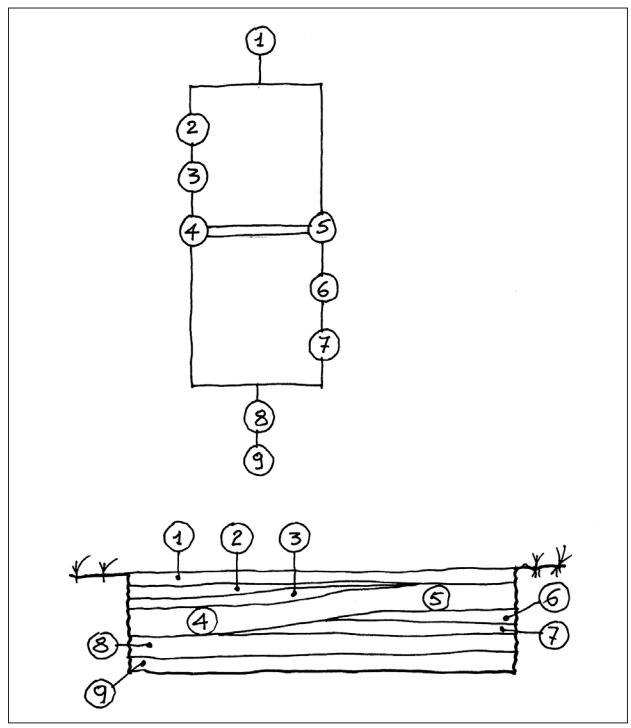

Figure 2. The 'ideal' stratigraphy: the archaeologist's dream (Drawings by F. Martore; after Olivieri 2014; Courtesy ISMEO).

representing the use of the site when its surface was static, are missing. So it may be claimed that [a variable percentage] of the stratigraphic record is regularly overlooked." (Ibid. 68). Now, if this is true for the static phases (i.e. abandonment), it is even more true for 'über-dynamic' phases, or destructive phases which have not left any taphonomic trace, like a black hole in space. We call these specific phases 'negative interfaces'.

The implications of negative interfaces

The general practice of stratigraphic archaeology foresees a model where all SUs (i.e. activities or events) are sealed and easily recognisable, provided that they are correctly excavated (Fig. 2). On the basis of the presumed integrity of the physical sequence, archaeologists are inclined to blithely reconstruct the material data as a cultural sequence (many in Pakistan use the term 'cultural profile'). However, the German archaeologist René Dittmann correctly described the potential dangers of this "ergological approach which claims that a higher layer will always follow a lower immediately in time" (Dittmann 1984: 156). In reality, in some cases the perception by archaeologists of a sharp, general change in pottery or in other artifacts is not due to a sudden and total cultural change, but rather to the removal of important amounts of sediments and features that had collected in that particular spot. Therefore, as we will see, stratigraphy and cultural sequence are two terms which do not necessarily neatly coincide.

This may be particularly true when there are 'negative interfaces' of a certain magnitude, whose existence was not documented or noticed by the archaeologists. The reasons for this can be various. In most cases it derives from outdated excavation or recording methodology, in other cases it is indirectly caused by the extent of an excavation. One should always remember that even in case of large-scale excavations, information outside the limits of the dig will remain totally unknown. In some cases these data might have modified the interpretation of what was documented inside the excavated space, and been crucial to understanding the real picture of the sequence of events that formed the biography of a site. This is exactly what happened at the site of Saidu Sharif I, and at Barikot, both in Swat.

Saidu Sharif I

In 2012-2014, I carried out some trial sondages at the already excavated Buddhist site of Saidu Sharif I, where a physical superimposition of a Buddhist sanctuary (c. 50 CE) on a late-protohistoric graveyard had been documented in the past (Callieri 1989, Faccenna 1995, Noci *et al.* 1997). The monastery and the stupas were found to be built directly over the remains of the protohistoric graveyard. Whether the graveyard had been abandoned or not at the moment when the sanctuary was planned, the superimposition was so direct that it was inferred that a very short space of time had elapsed between the two events. However, new radiocarbon analysis of five of the 19 skeletons collected by the archaeologists subsequently gave a completely different picture, since the inhumated individuals were backdated to the early-4th century BCE (Olivieri 2016) or slightly later (4th-3rd century BCE: Narasimhan *et al.* 2019). How to resolve the problem of the direct superimposition of two events distant by most three centuries from each other? The problem was solved when I decided to analyze an earthen wall section cut for the construction of some buildings (luckily halted by the authorities) just outside the lower limit of the stupa terrace. There, we found a series of layers which had not been documented, notwithstanding the previous careful excavations by my colleagues inside the sanctuary (Fig. 3). Below these layers a series of graves were visible, cut latitudinally by the section. The comparative analysis of the data emerging from the section and the stratigraphic evidence of the previous excavations leads to the following conclusions (descriptions follow Fig. 3 from bottom to top, i.e. from earlier to later layers).[2]

SU 4, the layer into which the graves were dug, corresponds to the layers documented inside the sanctuary, on which the Buddhist stupas and monastery were built. The previous excavations had not recorded the layers of rubble, gravel and sand, denoted as SU 3, nor the superimposed layers SU 2a-e. SU 3 covered part of the original plane outside the graveyard and its existing

form and composition is due to the erosion of the gravel mounds of the tombs. Layers SU 2a-e correspond to the erosion deposit formed between the abandonment of the graveyard and the construction of the sanctuary. In particular layers SU 2b and 2c could be considered as deposits resulting from erosion of graves further uphill (with a presence of scattered bone fragments). The upper interface of SU 2a corresponds to the original slope on which the construction of the Buddhist complex started.

After the study, I came to the conclusion that when the building started, SU 2a-e and SU 3 were removed artificially for the levelling of two terraces on which the complex was then constructed (Figs. 4, 5). Thus, the graveyard had been exposed and partially cut into during this invasive terracing work. This levelling work had also involved cutting into the rock along the northern boundary of the complex, something also documented by the new excavations (Olivieri 2016). As you can see, during the phase of preparation for the construction of the complex, the area was subjected to an extremely invasive modification

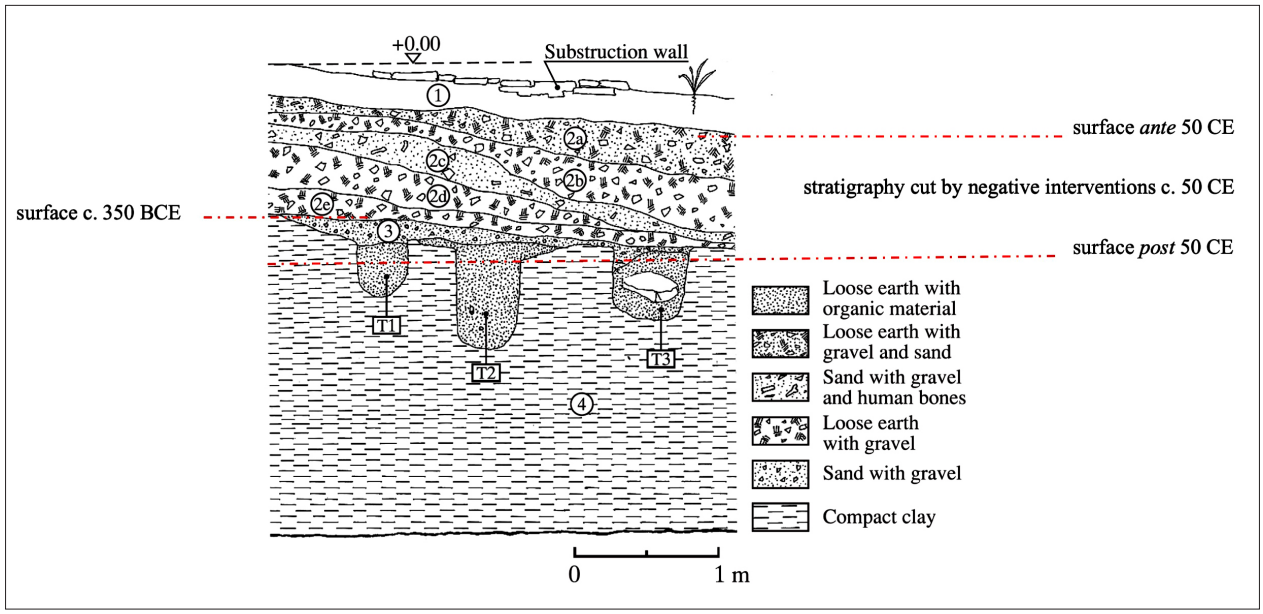

Figure 3. The wall section documented outside Saidu Sharif I (Drawings by F. Martore; Courtesy ISMEO).

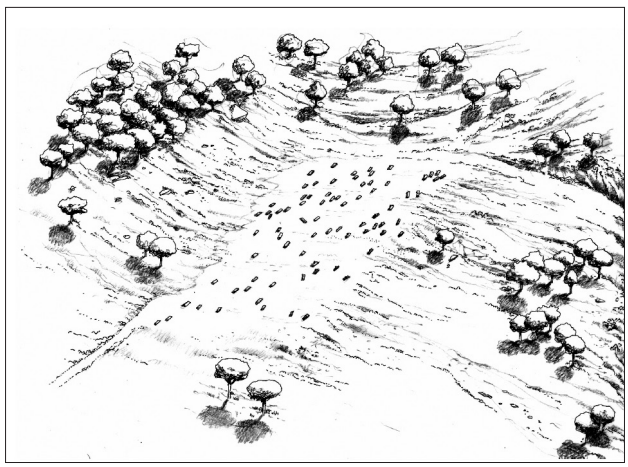

Figure 4. The graveyard at Saidu Sharif I (c. 4th century BCE) (Drawings by F. Martore; Courtesy ISMEO).

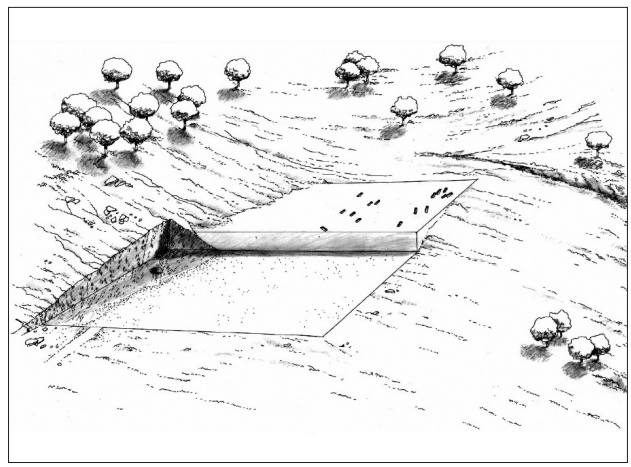

Figure 5. The terracing work for the Buddhist sanctuary (c. 50 CE) (Drawings by F. Martore; Courtesy ISMEO).

(Fig. 6). The gap in the chronological continuity between the two phenomena (the graveyard and the sanctuary) was thus artificially created; their physical superimposition is indirect. The idea of a direct superimposition generated after the first excavations was so convincing that the case of Saidu Sharif I might have been taken as one of the best examples of the "Buddhist occupation of early burial sites in India", in the words of one of the best studies ever conducted on that subject (Schopen 1996). But at Saidu Sharif, at least, that was not the case.

The above analysis also led to a reassessment of the final phase of the pre-sanctuary graveyards. During the phase of abandonment, erosion exposed and carried downhill scattered bone material from the graves further uphill. The graveyard had clearly been abandoned, and was no longer visible by the time the sanctuary was constructed. In short, some large-scale levelling work performed at the time of the construction of the Buddhist complex obliterated the previous stratigraphy, also partly cutting into the upper layers of a late-protohistoric graveyard, which had appeared to the archaeologists as though it had been directly cut into by the foundation walls of the monastery. The same situation appeared to have occurred at Barikot as well.

Barikot

Until 2015 there were no evidence whatsoever of a pre-Indo-Greek town (i.e. ante-150 BCE) at Barikot. The archaeological sequence accepted until then was that the Indo-Greek city had been founded as a fortified centre towards the end of the second century BCE directly on the

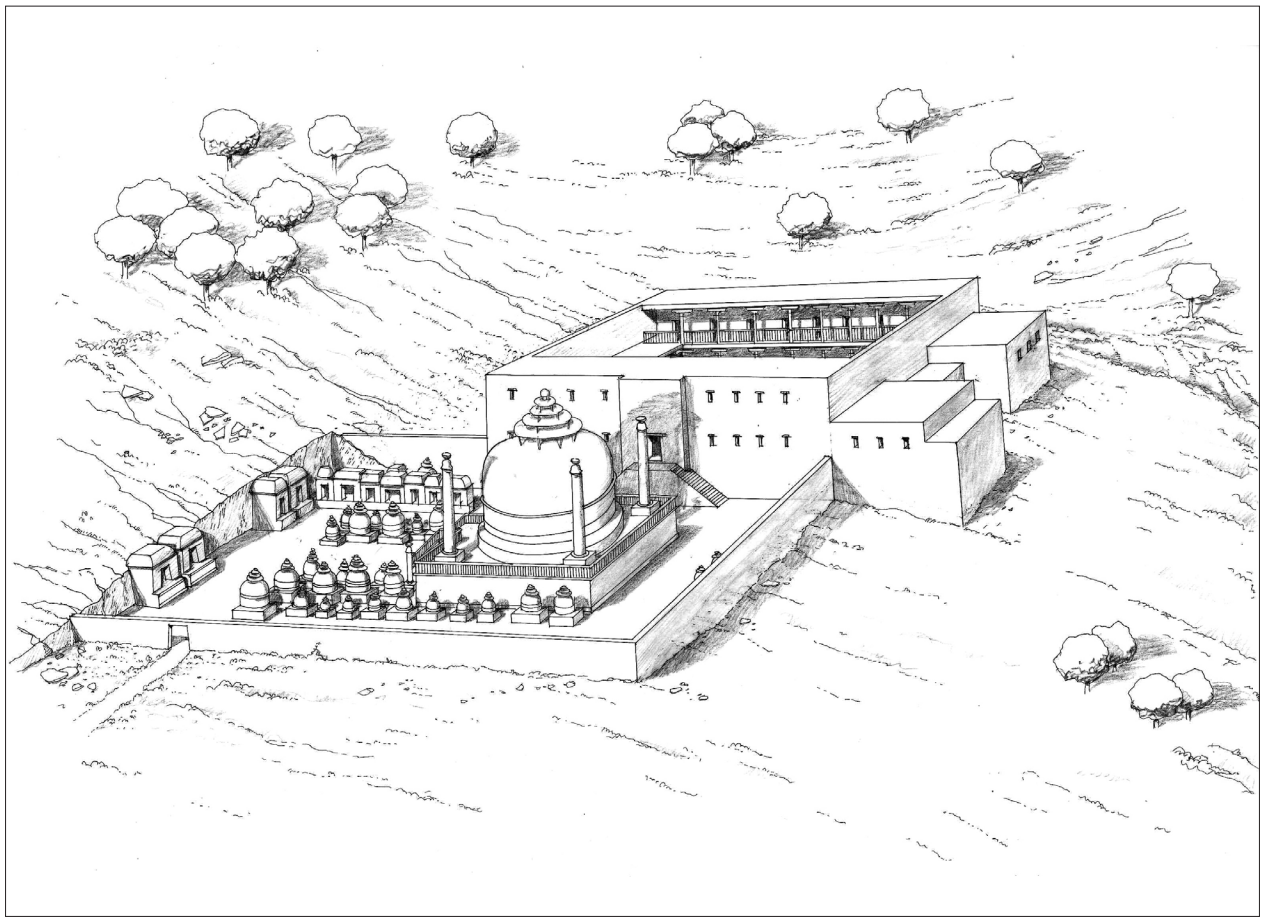

Figure 6. The Buddhist sanctuary at Saidu Sharif I (Drawings by F. Martore; Courtesy ISMEO).

remains of a late Bronze-Iron age village, and that the major earliest evidence of the city was the Indo-Greek defensive wall surrounding the city and its acropolis (Figs 7, 8). Unfortunately, in the excavation areas selected in the past, the superimposition of surfaces and buildings of later phases was so thick that one could only carry out a blind test on the few early-historic protohistoric structures.

Nevertheless, the overlap was so evident and recurrent that it left us with no option but to interpret the physical sequence in terms of cultural events. The reconstructed sequence implied a long-lasting late protohistoric phase until the beginning of the early-historic city. At that time Swat had not exhibited the intermediate cultural profile that was documented in the biggest sites of the plain like Bhir Mound and Charsadda. This led the former excavators to interpret such an absence in terms of cultural marginality (Tusa 1979).

In his 1984 work on the Achaemenian/Mauryan horizon, R. Dittmann noted several problems with the reconstructions generated from the data of the Italian excavations in Swat. On the Mauryan phase at Aligrama he noted, however, that the diagnostic pottery types of Charsadda (Čārsaḍḍa) IIB-IIC/D were not represented at Aligrama. He concluded bluntly that "[...] there is a gap in the sequence of Aligrāma, covering at least the Čārsaḍḍa IIB-IID phases. Therefore it is perfectly clear that there is no Mauryan occupation at Aligrāma". He added: "Thus, at Bīr-kōt-ghuṇḍai there is a gap in the sequence covering [the same] Čārsaḍḍa IIA-IID phases" (Dittman1984: 172-174). A second work published by W. Vogelsang in 1988 had a bit more to say on this aspect of the record, but noted the same issue with the Swat sequence, and correctly connected the 'gap' to the problem of the chronology of the late Bronze-Iron age graveyards.

Now, we know that the cultural phases of the late Bronze-Iron age period of Swat (settlements and graveyards) are firmly confined to the period between 1200 BCE and 800 BCE (Vidale, Micheli, Olivieri 2016; Narasimhan *et al*. 2019). The dating of the Indo-Greek wall with its associated layers and materials has been confirmed by recent C14 dates (Macrophase 3a.3 = c. 130 BCE) (Olivieri *et al*. 2019). To that, the 2016-2017 excavation campaigns added important new details: it was then that Barikot revealed the unexpected presence of a 'Bhir Mound/Charsadda Horizon', supported by a consistent set of C14 dates (Olivieri *et al*. 2019).

Inside the city, about 100 meters from the

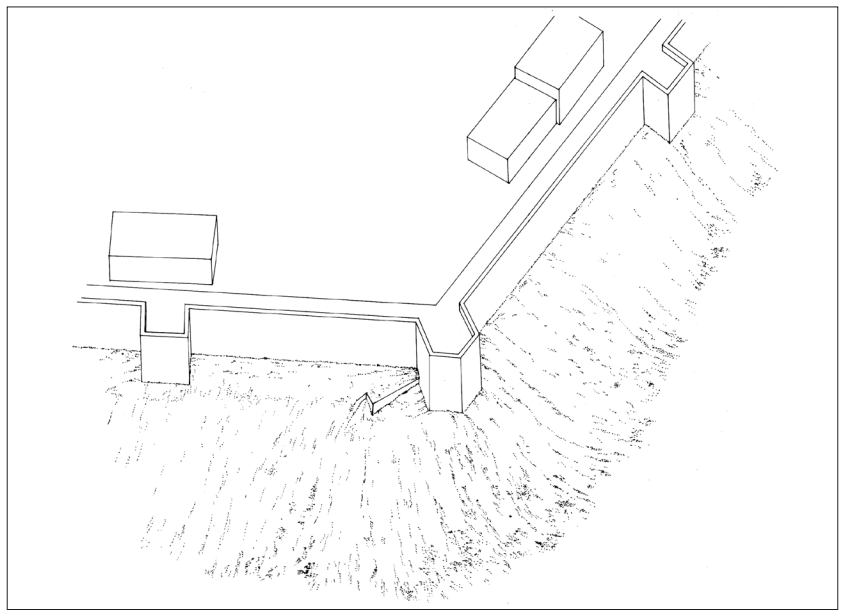

Figure 7. The Indo-Greek defensive wall and the protohistoric structure emerging below (c. 130 BCE) (Drawings by F. Martore; Courtesy ISMEO).

Indo-Greek wall, the deep trench 11-K revealed a complete uninterrupted sequence, from 1200 BCE to Kushan times. After the late Bronze-Iron age phase (Macrophase 1a-c = 1200-800 BCE) a long abandonment period was documented (Interphase 1c-2a), followed by an early urban phase (Macrophase 2a-b = 500-400 BCE), a Mauryan and Indo-Greek phase (Macrophase 3a.1-4) (300-50 BCE), a Saka-Parthian period (Macrophase 3b = BCE 50-50 CE), etc. (Olivieri *et al.* 2019 and Olivieri and Iori 2019 with refs) (Fig. 9).

Outside the Indo-Greek wall, our excavation in trench 12W demonstrated that the construction of the wall (Macrophase 3a.3) had been preceded by the cut of a long, stepped foundation trench dug into an artificially modified slope which had removed all the preexisting stratigraphy documented in sector K of Trench 11[3], which revealed the far earlier Iron Age structures (Macrophase 1). This intensive levelling work caused the partial obliteration of the post-Iron Age stratigraphy all along the urban wall (both

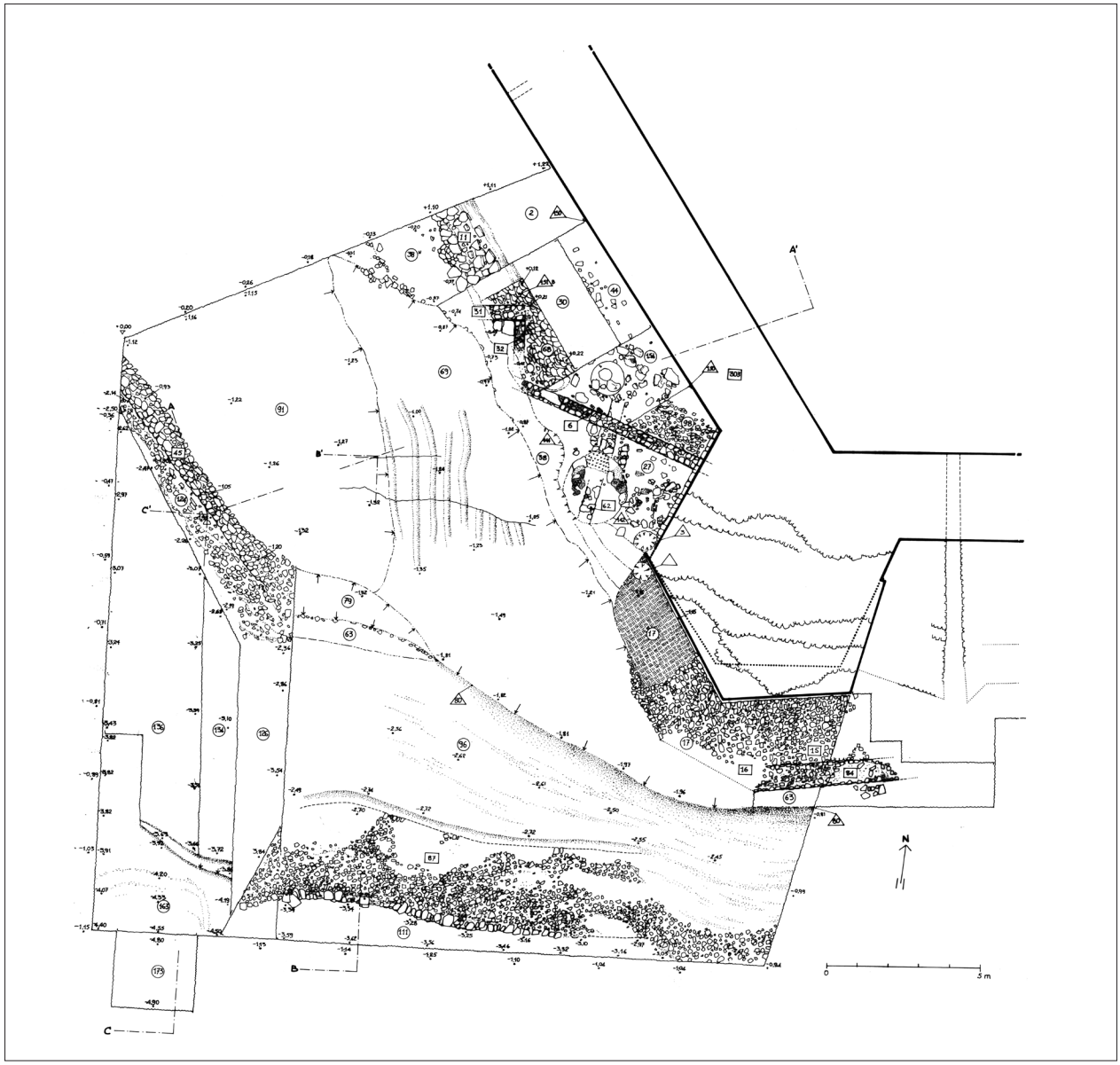

Figure 8. Plan of the excavated area of trench BKG 12W (Drawings by F. Martore; Courtesy ISMEO).

inside and outside). Fig. 10, here, illustrates to the left the events reconstructed as follows: I) a, b, c: structures of Macrophase 1; II) a: abandonment corresponding to Interphase 1c/2a of trench 11-K; III) Macrophase 2b: building of an earlier mud rampart (b) with a ditch (a), whose cut partially exposed structures of Macrophase 1; IV): levelling work in Macrophase 3a3 with obliteration of Macrophase 2 stratigraphy (with the exception of a small remnant of rampart b[4]), and exposure of the Macrophase 1 layers; V), final stratification. To the right, Fig. 10 presents a simplified scheme of the above.

Now, after re-setting the chronology of the late Bronze-Iron age, we understand that the gap noted by both Dittman and Vogelsang arose from different factors. At Aligrama, it was the result of a real abandonment of the site, while at Barikot it was artificially created by the obliteration of an entire stratigraphic sequence caused by levelling work done for the construction of the city defensive wall around 130 BCE.

Conclusions

From these selected examples, arising from my personal experience, I hope that the significance of such negative impacts will be evident. Negative interfaces are not only extremely important for the interpretation of the sequence of a site, but are also crucial for avoiding misleading reconstructions of the cultural history of a region. The practical examples offered here should represent a lesson learned: in archaeology we deal not only with what survives but also, and indeed especially, with what is not visible anymore, sometimes also with what was barely visible even at the time of the event. Archaeologists like to talk about the *long durée* (long duration) of cultural phases. Here we are dealing with the archaeology of the shortest *durée*. The negative interfaces we deal with were at the time of their 'life' just 'actions', whose visibility lasted only for the extent of their execution.

The invisible or missed part of the archaeological record is certainly the most important one, because - almost paradoxically -

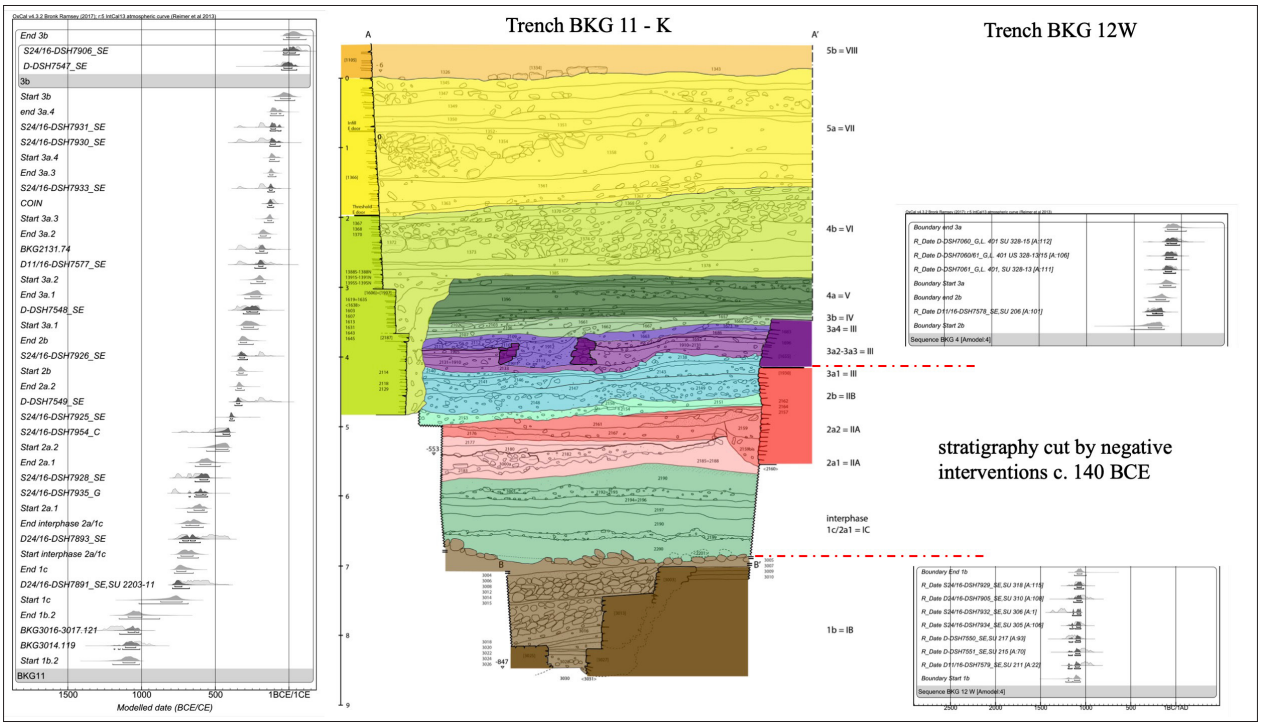

Figure 9. Section of trench BKG 11-K with C14 dates compared to BKG 12W and its split sequence (Drawings by E. Iori and M. Vidale; Courtesy ISMEO).

it was systematically produced by the practical conditions of living and by important collective choices, particularly in early urban contexts. We archaeologists generally deal with the leftovers of life: barren, often mute, remains. These interfaces speak eloquently of the living past, and should be listened to carefully.

Notes

1. The author would like to thank not only Massimo Vidale (Padua) and Llewelyn Morgan (Oxford) for their comments, insights and linguistic revisions, but also the anonymous reviewers. One of them noted that "This, and much else in this [article], falls within the scope of 'site formation processes', well known to most archaeologists since at least the 1980s [Schiffer 1987]". The reviewer also noted that "Methodologies for investigating site-forming processes are not simply stratigraphic in the formalised sense used in this [article], but geoarchaeological - including micromorphology [Goldberg, Nash, and Petraglia (eds) 1993]". Of course, I cannot but agree with the above. My comments, however, are more related to the reality of the general practice that I still see as dominant in many archaeological excavations.
2. Note that in the analysis of the wall section (which is bidimensional) I purposely avoided to record the interfaces (which can be appreciated only in a tridimensional excavation). Of course, between SU 4 and 3, there was a trampling surface, corresponding to the upper surface of SU 4, from which people dug out the graves. And so on...
3. Interphase 1c/2a and Macrophase 2a-b are documented only in trench 11-K.
4. In trench 12W there survived only a residual portion of a thick layer of compact depurated clay dated by C14 to the 4th-3rd century BCE (Macrophase 2b).

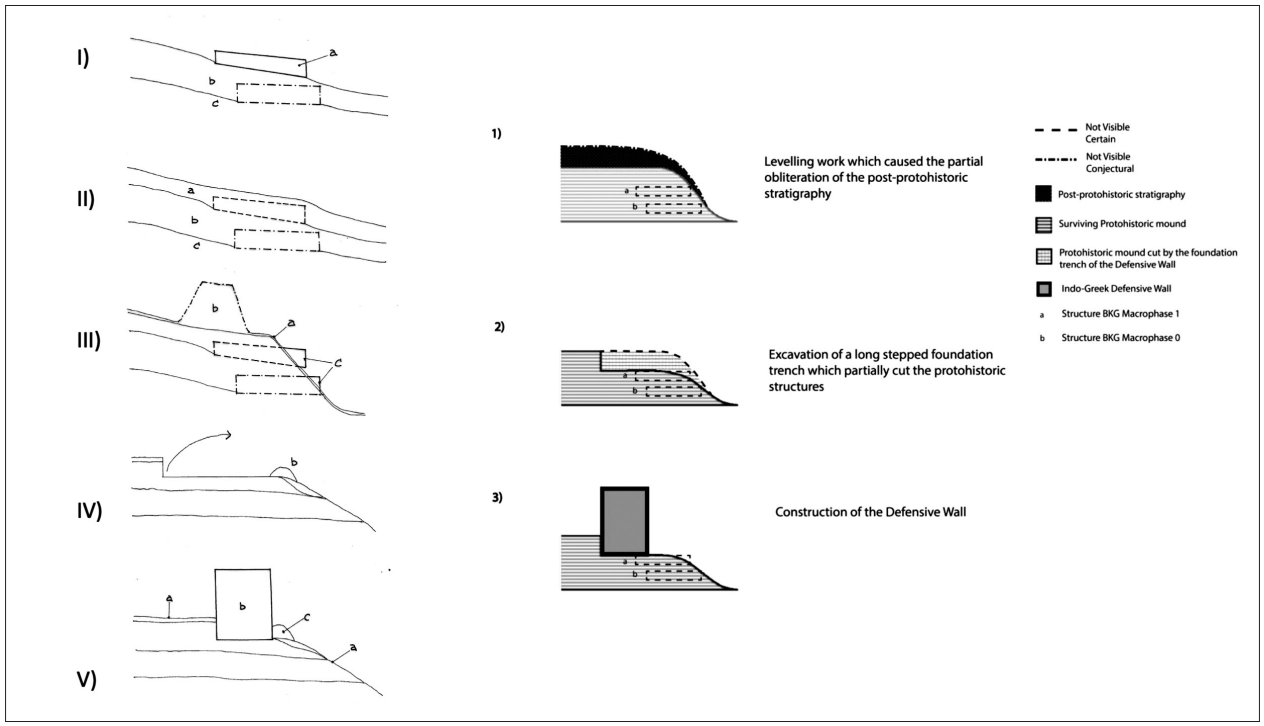

Figure 10. The sequence of building/obliteration actions documented along the Indo-Greek urban wall (Drawings by E. Iori and F. Martore; Courtesy ISMEO).

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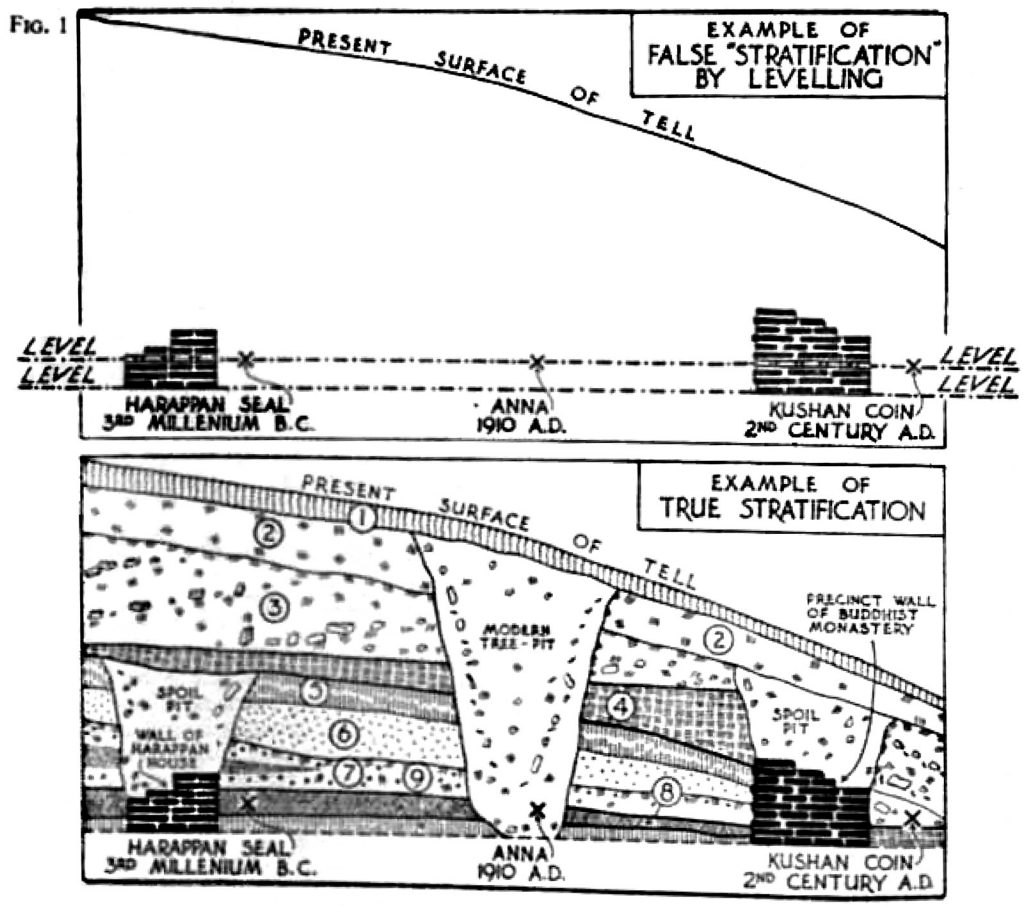

Figure 11. False and true stratifications according to M. Wheeler (reproduced from *Ancient India* 3, 1947, p. 146, fig. 1)

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Contributors

ABDUL **SAMAD**, PHD

Director, Directorate of Archaeology and Museums,
Government of Khyber Pakhtunkhwa,
Peshawar, Pakistan. ✉ samkhn@hotmail.com

ABDUR **RAHMAN**, PHD

Former Professor, Department of Archaeology,
University of Peshawar, Peshawar, Pakistan.
✉ waraich1934@hotmail.com

CAROLINE R. **CARTWRIGHT**, PHD

Department of Scientific Research,
The British Museum, London, UK.
✉ ccartwright@britishmuseum.org

GUL RAHIM **KHAN**, PHD

Professor, Department of Archaeology,
University of Peshawar, Peshawar, Pakistan.
✉ grahim2006@uop.edu.pk

IBRAHIM **SHAH**, PHD

Professor, Department of Archaeology,
University of Peshawar, Pakistan.
✉ ibrahimshah@uop.edu.pk

KENNETH D. **THOMAS**

Emeritus Professor, Institute of Archaeology,
University College London, UK.
✉ k.thomas@ucl.ac.uk

LUCA MARIA **OLIVIERI**, PHD

Director, ISMEO Italian Archaeological Mission
in Pakistan / Professor, Ca' Foscari University of
Venice, Italy. ✉ lucamaria.olivieri@unive.it