1. METHODOLOGY

1.1. STRATIGRAPHIC EXCAVATION

Archaeological sites are made up of discrete layers of cultural debris and other natural features, such as deposits formed by erosion. Stratigraphic excavation is the isolation and identification of different deposits and features and the careful removal of each of these separately in the reverse order of their deposition, the logical assumption being that the upper strata were formed more recently than the lower strata. This concept was developed for application in archaeology from the Law of Superposition, a geological concept relating to the formation of horizontal layers of rock in the earth's crust. In plain language, the "Last In, First Out" principle means that a pit must be isolated and dug before the earth into which it was cut is excavated. This is the basic tenet of modern archaeological excavation.

1.2. THE OPEN–AREA METHOD

Traditionally, archaeologists in Greece have used trenches and balks to excavate ancient remains (i.e. the trench-and-balk method). These typically take the form of 5-x-5-m squares with balks that separate them (Fig. 1a), and they are commonly referred to also as "Wheeler boxes," in reference to Sir Mortimer Wheeler, the British archaeologist who first pioneered their use in the 1920s and 1930s (Wheeler 1954). Proponents of this method argue that the balks allow the archaeologist to have permanent access to the stratigraphy of the site by preserving vertical views of the strata throughout excavation. While sections can be a useful tool, they also may be a hindrance to the archaeologist.

With this method, ironically, the archaeological remains that have not been excavated (i.e. the balks) can be given more importance by the archaeologist than what has actually been excavated (i.e. the trenches). However, it has been demonstrated repeatedly that the vertical section preserved by the balk can be more misleading in terms of understanding site formation than can simply excavating context by context without creating arbitrary trench boundaries. The reasons for this include situations when the balk "just misses" a context that was excavated inside the trench, and therefore the section preserves a false or incomplete record of the stratigraphic relationships of the contexts in that area. The trench-and-balk method also may impede the interpretation of certain contexts, wherein only part of the context is revealed inside the trench.

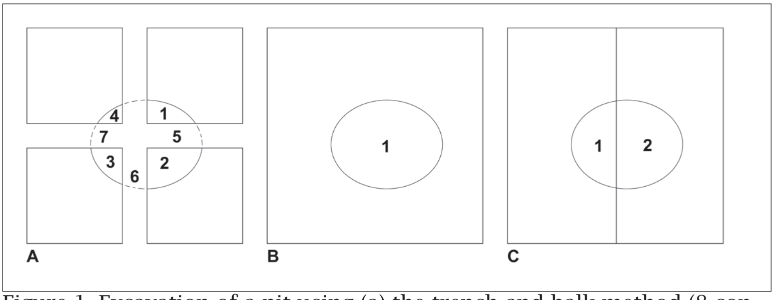


Figure 1. Excavation of a pit using (a) the trench-and-balk method (8 contexts), (b) the open-area method (1 context), and (c) the modified trench-and-balk method (2 contexts). Drawing J. Herbst

At Corinth, we have recently reassessed our own methodology and abandoned the trench-and-balk method in favor of the open-area method (Fig. 1b), now standard practice all over Britain, much of the United States, and other parts of Europe. Instead of arbitrarily sectioning all the stratigraphic contexts on the site and removing them within a single trench, open-area excavation treats the entire excavation area as one large trench, in which each individual context is identified, recorded, and removed (if possible) in chronological and stratigraphic sequence. This method allows us to see more, if not all, of a given context at one time, and it thus provides more information at the moment of excavation that can be used to interpret context formation, finds, and stratigraphic relationships. It also allows for a better chronological control of the site; that is, it is possible to concentrate attention on the stratigraphic relationships and material record of a single chronological period, rather than excavating several trenches at different chronological levels and leaving the excavators to piece the disparate records back together after the excavation season has ended.

However, it is important for the method to be flexible enough to manage the variety of situations that will be encountered in the field. There may be specific situations in which it is helpful to section a context or a series of contexts in order to obtain a vertical view of the strata before the entirety of the material is removed (Fig. 1c). This strategy might be useful when an area of the site has a particularly complicated stratigraphy, when a section might be useful for soil coring, or when the importance of a feature must be evaluated in a time-limited excavation. If this strategy is employed, it is important that the decision is fully explained on the context recording sheets (see §1.3) and that the scarp created through such excavation is carefully drawn. Later on, it also will be important to reunite the material taken from the sectioned contexts, be they in two or four parts (i.e. by half-sectioning or quarter-sectioning).

At the densely inhabited, architecturally rich urban site of Corinth, we have come to recognize open-area excavation as the most appropriate excavation strategy, as it allows for more successful on-site and post-excavation interpretation and analysis and reduces the time needed to publish findings. The open-area strategy might not produce the results desired on other archaeological research projects, where constraints on time and resources and a lack of experienced excavators may impede the implementation of this practice. However, the procedures outlined in this manual are not exclusive to open-area excavation, as the rigorous recording methodology advocated here makes comparison of strata between excavated areas more straightforward on any given excavated site.

1.3. SINGLE-CONTEXT RECORDING

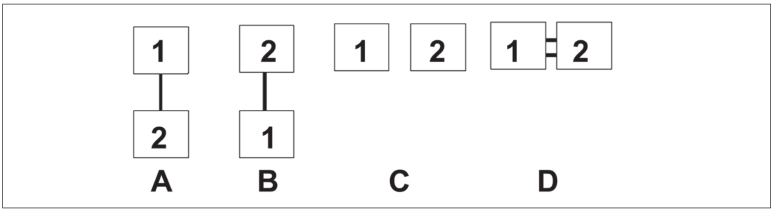
Any action that leaves a trace in the strata of an archaeological site, whether it be an anthropogenic or natural event, should be recorded during excavation; in this system, such an action is called a **context**. Some actions will leave a "positive" trace: these are either **deposits** of soil and other materials, such as a dump of rubbish in a pit or the fill inside a grave, or built **structures**, such as walls. Others actions will leave a "negative" trace: these are cuts, or an action that "cuts" into other contexts (i.e. when a grave, well, or foundation trench for the building of a wall is dug into the surrounding contexts). By identifying, excavating, and recording each context individually, it is possible to reconstruct the history of activity at a site. Each context is recorded on one of three standardized context recording sheets (the Deposit Sheet, Cut Sheet, or Structure Sheet; see Appendix 1), which encourages the recorder to make certain observations and attempt certain interpretations. Each context is also drawn to scale. In theory, by keeping consistent, careful, and detailed records, it should be possible at any time in the future to reconstruct the site layer by layer and context by context, integrating finds and features. In an open-area excavation, deposits are recorded and removed in their entirety. However, in practice, certain walls and features may be left for future restoration and presentation to the public, making total removal of these contexts impossible.

Experienced archaeological technicians trained by Corinth Excavations and overseen by the foreman do the excavating at Corinth. However, supervisors also do a certain amount of excavation. Although their main responsibility is to record individual contexts as they are removed, excavation will help them to understand differences in color, composition, and texture that differentiate deposits and define cuts. The Director of Excavations and the Field Director are responsible for assessing the stratigraphic relationships of the excavation area as a whole and for coordinating the supervisors in the recording of contexts as they are removed in stratigraphic sequence. The Corinth Excavations recording system aims to counter the potential problem of a disconnect between an experienced excavator and an inexperienced recorder by forcing the recorder to answer specific questions about every context—questions that are impossible to answer without the recorder feeling the soil themselves, working very closely with the excavator to understand the physical nature of the context and how it relates to surrounding contexts, and suggesting the most plausible interpretation of the context based on all available evidence.

1.4. THE HARRIS MATRIX

In 1975 Edward Harris published and copyrighted the Harris-Winchester Matrix (Harris 1975). At Corinth, the Harris Matrix is one of the principal post-excavation analytical processes, and it is something that must be added to and updated in and out of the field on a daily basis. The Harris Matrix is not a matrix at all, but rather a two-dimensional diagram that represents the spatial and temporal relationships between archaeological contexts. This is why in every Harris Matrix the latest contexts should be at the top and the earlier ones below (see diagram below). Since 1975 numerous books and articles have been written on the subject, and several computer programs have been designed to help assemble the diagrams. The Corinth Excavations database tracks stratigraphic relationships (see §6.2.10). Because the database does not yet generate a Harris Matrix for graphic feedback, a master matrix must be created on paper or on the computer. At Corinth we regularly use a program called ArchEd (first developed in 1996 at the Max Planck Institute) to render Harris matrices graphically. All contexts are included in the matrix: deposits, cuts, and structures. Every one of these contexts should have a unique context number.

There are four basic time relationships that exist between contexts:



A. **1 is later than 2.** This is an immediate chronological relationship.

B. **1 is earlier than 2.** This is an immediate chronological relationship.

C. **1 is contemporary with 2.** This relationship can only be determined by material culture or a full understanding of the site (e.g. two walls bond with each other, and so must have been constructed at the same time).

D. **1 equals 2.** In other words, this is the same context excavated in two operations, such as when a context is sectioned or when the same context has been cut into two parts by later human activity (e.g. a construction trench for a drain that cuts through an earlier grave, rendering it in two parts).

When constructing a Harris Matrix, it is not necessarily the physical relationship that is the most important element. A context may overlie several strata, but it is the latest of these strata that is the most chronologically relevant. For example, if the foundation trench for a wall cuts through several different layers of soil, it is critical to establish **the latest layer that it cuts**—this was the surface that was in use at the time the wall was built, and therefore it is the most useful in dating the construction of the wall. In this way, the matrix is a very important organizational tool, as it moves beyond simple physical relationships and forces excavators to refine their understanding of chronological relationships. The Harris Matrix should be **updated daily** by the excavator to help maintain a working understanding of the stratigraphy of the site. Working Harris Matrix Sheets are available for use in the field as a supplement to the Harris Matrix component of the context recording sheets (Appendix 1).

Example: In the section illustrated below (Fig. 2), the topsoil (Context 1) is the latest context present. Context 1 overlies several discrete deposits (2, 3, 4, and 10), physically touching all of them. Through further excavation, it is revealed that 2 cuts 10 and thus must be later in time. Further, 2 and 3 both cut into 4, 4 overlies 5, 5 cuts 6 and 7, and so on. However, in the Harris Matrix for this hypothetical situation, the relationships have been streamlined so that redundant relationships are not expressed. In this case, even though it has already been established that 1 is later than 2, 3, 4, and 10, it is unnecessary to draw additional lines from 1 to 4 and from 1 to 10, as the matrix is already expressing the fact that 1 is later in time than both 4 and

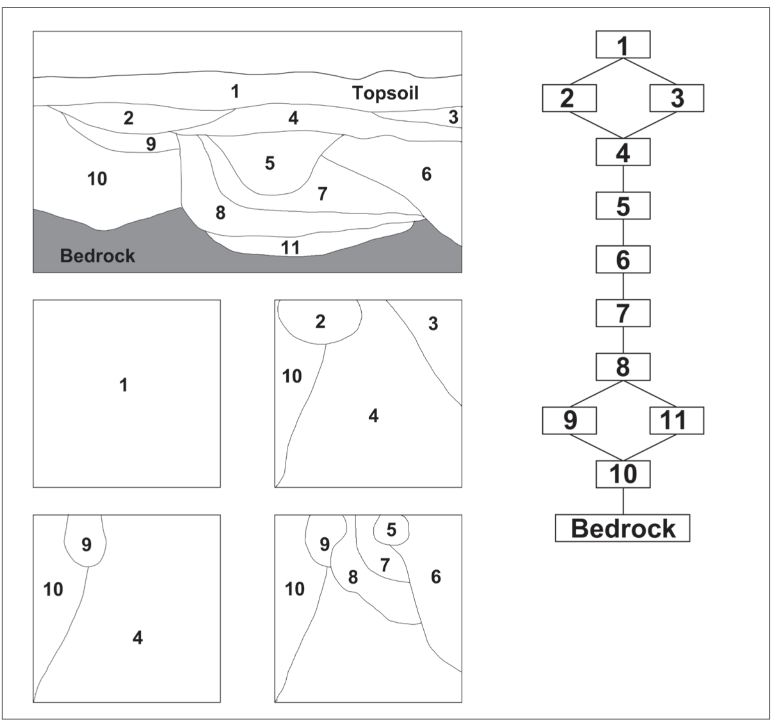


Figure 2. Hypothetical plans and vertical section showing several strata overlying bedrock, with a Harris Matrix expressing these relationships. Drawing J. Herbst

10 by being situated above them in the diagram. (Note that cuts are not included in this example.)