

TEL GEZER EXCAVATION MANUAL

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The aim of this manual is to introduce Field Staff members to the recording and excavation methods used at Tel Gezer.* There are many similarities in excavation methods in Near Eastern Archaeology; if you were trained at another project, you will find many similarities. Nevertheless, there are some differences and you need to be cognizant of these nuances to give consistency and reduce the possibility of confusion. The recording system is driven by the excavation methodology and not vice-versa. [A well excavated site can produce a well documented or a poorly documented record. A poorly excavated site can only produce a poorly documented record.] While the supervisor should be primarily focused on the supervision and excavation of their assigned area/square, the recording and documentation is just as important.

The recording system is new and has not been tested in the field. It is designed to be flexible, but there should be an attempt to standardize the recording system. The project seeks suggestions for improvement from field staff. Our goal is to view the recording system as bookkeeping—the documentation that takes the excavation to the final publication.

*The manual is an adaptation of the Tel Rehov manual by B. Mullins.

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1. Introduction to the Site

Tel Gezer has a long history of site formation: both in occupation of the site and archaeological excavations. The last ancient occupation of the site was during the Byzantine Period. The site was reoccupied during the Ottoman Period. The site consists of a western and eastern hill with a central valley between. There is a Muslim *weli* on top of the western hill that is part of a village cemetery. The site is about 33 acres. Visible excavated features are High Place (series of monoliths), MB gate, Solomonic Gate, and the Gezer Water System. Remains of the old excavation camp are on the western hill. This camp was where the village was located. There was a farmstead built in this area. The remains of part of the structure is located here. Today this is where a parking lot on the site is built as well as where we will store our tools and have the breakfast tent.

2. The Site Grid

Normally sites are prepared according to the main grid of the Israel Geographic Survey. A topographic map has already been established by the HUC excavations. We have plotted major features using GPS. Macalister used a system of 30 N-S 10 m trenches across the site. The HUC excavations and subsequent excavations (e.g. 1984, 1990) used individual grids in each field consisting of 5 x 5 m squares. To develop uniformity of the renewed excavations, we prepared a master grid consisting of 100 x 100 m squares. An arbitrary N-S and E-W line was marked off thus forming 4 quadrants (NW/NE/SW/SE). The intersection of these lines is just north of Field VII of the HUC excavations. Our excavations will be concentrated in the SW quadrant. Each quadrant contains twenty-one 100 x 100 m squares. These large squares are then sub-divided into smaller 5 x 5 units. We followed the standard procedure of dividing the mound into squares of 100 x 100 m oriented to the north. These large squares were then sub-divided into smaller units of 5 x 5 m. The coordinates of this smaller grid are designated by *letters* from west to east and by *numbers* from north to south. We will use a one-meter balk between the individual 5 x 5 m. squares, thus allowing for individual excavation squares of 4 x 4 meters.

3. Basic Excavation Procedure

A. Site Formation

A tell is typically formed by successive cycles of construction, occupation, and destruction or abandonment. Any series of layers with accompanying architecture and pottery belonging to one of these cycles is defined as a stratum. The HUC excavations have defined twenty six strata (I-XXVI).

Many of these occupation levels or strata contain phases or sub-phases. These generally represent the raising of floors or other additions and alterations made to a settlement during its lifetime. The technical goal of the archaeologist is to identify the various layers and features which characterize a stratum, and to remove them in the reverse order of their construction and deposition. The

ultimate aim of the excavator is to offer a reasonable interpretation of each stratum as characterized by its assemblage.

B. Stratigraphic Method

The stratigraphic method used at Tel Gezer is a synthesis of two traditional approaches: The older architectural method stressing horizontal exposure, and the Wheeler-Kenyon method emphasizing balks as a record of the vertical sequence. In the philosophy of the Gezer expedition, the main goal is to understand the overall layout of select areas without sacrificing the value that can be obtained by a careful reading and interpretation of associated debris layers.

The meter balks are left standing for as long as necessary. They will not be removed until drawn or until we feel that they have served their purpose. The goal is to excavate all squares in a field so they are all on a contemporary stratum. Then the balks are drawn and excavated exposing a complete architectural overview of a single cultural horizon. We also tag balks as an effective way to identify and recall the various debris layers and floor levels.

Although it is preferable to excavate an entire unit before descending to the next level, there are cases where it is expedient to exploit certain squares as “windows” to an earlier phase, before completing the main architectural unit. However, these are decisions to be made in concert with the dig directors.

The excavation and its recording is based on features and layers. We do not dig layers of arbitrary depth, but we follow the contours of the sediment (whether sloping or flat) in order to discern the boundaries between the loci which were defined at the time of their formation or subsequent disturbance. Being able to find those boundaries and identify the separate loci requires the discernment of the archaeologists—field archaeology is an art rather than a science. Many archaeological deposits, e.g., sediment and debris deposits, do not meet in tidy layers directly above each other; rather, they meet in complicated vertical and horizontal relationships (one deposit lying up against another deposit). The process of defining the extent of a feature or layer, and determining its stratigraphic relationships to other deposits, is the dominant question in defining daily goals and field methodology.

C. Layers and Features

A layer is a deposition of earth that comes about through human activity or natural processes such as windblown loess or erosion. Layers are stratigraphically significant and must always be identified by a locus number. Examples of layers are debris layers on top of a surface; a constructional fill to level a surface or feature; an upper storey collapse on top of a debris layer, etc.

Sometimes layers contain lenses. A lens is a distinctive soil or ash deposit which was thought at first to be discrete, but is actually a pocket within another soil layer and not stratigraphically significant. You do not normally give locus numbers to lenses, since they are considered part of the layer. However, you

must describe on the locus sheet the characteristics of any soil or ash lenses that may appear within a layer.

Features are usually architectural components such as floors, walls, bins, ovens, pits, etc. As with layers, all features are identified by a locus number.

D. The Locus

The locus is a subset of the stratum. It is any identifiable layer or feature whose composition or stratigraphic position marks it as distinct. Thus, soil layers and architectural features are both subsumed under the term “locus”.

All pottery, bones, and other finds from a specific locus are collected each day and assigned basket numbers. Separate basket numbers must be assigned to whole vessels, intact broken vessels, special finds, and samples for laboratory analysis.

E. The Basket Number

In addition to the locus the basket number is the second most important documentation. Every artifact and ecofact is associated with this number. Unlike the locus, the basket number is an artificial entity for the documentation and processing of material culture. The basket number is useful for the collection and documentation of the distribution and patterning of the material correlates of society.

If the Locus is the primary record for the excavation process, the basket number is the primary record for the recording system. The Locus and Basket should be considered *sacred*.

The basket number serves a variety of functions in our recording system. One basic function is as a control device. Often loci will be excavated over the course of several days. By assigning a new basket number to the locus each day, we are able to track the excavation of that locus over time. This may be important, if later we discover, e.g., that the locus was excavated improperly, contaminated, etc. In the same manner, if for some reason the excavator feels that the collection of material culture has been contaminated in the course of excavation, that pottery bucket can be closed, noted as contaminated, and a new one opened, noted as clean. Pottery buckets can also be used as a stratigraphic tool. At times minor changes or anomalies may be observed in a deposit while it is being excavated. These changes or anomalies may not dictate changing loci, but they may be visible enough to warrant separation from material previously excavated in the locus. In this case, always close the old pottery bucket, and do not re-open it. When the anomaly has been removed, then change pottery buckets again, and resume excavation of the locus.

F. Issues in Excavation

The Problem of Floors

It is customary in British and American excavations to regard the floor itself as a separate locus. The purpose is to distinguish debris lying on a floor or below a floor from the floor itself. The disadvantage of this approach is that you assign several locus numbers to features that have little or no material culture value. If someone wants to study the finds within a particular building, the floor locus numbers are of no value because they do not have any material culture associated with that number in the database. It is, in effect, a “dead” number.

In most Israeli digs, the floor has the same number as the deposit *above* it. Since we are interested in dating the last use of a building, it is finds *on* the floor that concern us. Once the surface has been cleared, the locus number and definition is changed to “floor make-up”- meaning the floor itself and the first few cm. below. The disadvantage of this method is that no number is attached to the floor itself as a discrete unit. .

At Tel Gezer, we will follow the British and American system. Thus, every surface (even a thin beaten earth one) will get its own locus number. This is of particular importance since some Iron Age structures have been reused in the Hellenistic period (e.g. Solomonic Gate and a Hellenistic reuse) and we need a system that accounts for the variations in the stratigraphic record of the site.

Datable material accumulated on a floor by the law of stratigraphy gives a *terminus ante quem* date for the floor, which could not have been inserted beneath the material after it was deposited. Material sealed beneath a floor gives a *terminus post quem* date for the floor, since it cannot have gotten there after the floor was laid.

The use of test pits

The “test pit” or “probe” is another system sometimes used in British and American digs. This is done to get a feel for what lies below the rest of the square and then peel back. While useful, this method can also be deceiving, since crucial changes may occur in another part of the square than where you set the probe. In addition, it forces you not to excavate stratigraphically. A preferred method is to descend in 5-10 cm increments over the entire square. This way you see the broad picture, including that beaten earth floor which was not preserved where you placed your probe. Once you reach a floor or a clearly defined layer, you must make every effort to follow it.

4. The Excavation Recording System

The excavation and recording system is an adoption of the best of American and Israeli systems. The recording system is a procedure that has been used by American excavations since the HUC excavations of Gezer starting in the 60s and adopted and adapted by most digs in the field. Israeli excavations have synthesized the excavation and recording system based on a large area consisting of several squares of a grid system. It is described in detail in Y. Aharoni, et al. *Beersheba I* (1973: 119-132). This approach has been adapted by most Israeli field projects. Most American projects have adapted the method used at the HUC excavations of

Gezer that records according to the individual square versus the area. There are pros and cons to each system. Recording by the area allows for a better synthesis of data and records closer to the facts on the ground. Recording by the square creates an elaborate system (e.g. if a wall goes through three squares, it will get assigned three loci) that becomes especially cumbersome in the publication stage. Recording by square does allow for greater control of the data and in addition, is the best system to allow students to experience all aspects of the excavation.

At Gezer, we will use a combination of both recording systems. Assignments of Loci and basket numbers will be by the larger area/field, but the documentation and recording will be based on the individual squares of the grid.

A. The Computer Registration System

The software that we use for recording, maintaining, organizing, and sorting our data is *Access* which is part of the *Microsoft Office* package for Windows 2000. This system was designed by the Rehov excavations. You will be shown how to use this system set up for the Tel Gezer expedition by the computer staff. This database will permit us to record and receive print-outs of daily basket lists, groups of finds, pottery sorting results, and so forth. Copies of these files are kept at the Center for Archaeological Research at New Orleans Baptist Theological Seminary and in the archives of the Israel Antiquities Authority in Jerusalem.

It is important that someone is designated to enter data into the database every day. Moreover, once a provisional print-out is made on the printer, everything must be checked for accuracy with the original paper work from the tel.

B. The “Bank” of Numbers for Loci and Baskets

At the start of the season, each Field is given its own “bank” of locus and basket numbers. Locus numbers have four digit and basket numbers have five. In both cases, the first digit represents the *season* and the second digit the *area*. For loci, the last two digits is the locus number (01-99). For baskets, the last three digits is the basket (001-999). To give examples of how this system works, Locus 2413 means Season 2, Area C, Locus 13. Basket 36146 means Season 3, Area D, Basket 146.

The Field Supervisor/Field Archaeologist will assign each square supervisor a group of numbers at the start of the season. If in the process of excavation the square supervisor uses up their group of numbers (either locus or baskets), the Field Supervisor will assign another set of numbers.

C. The Excavation Notebook

The following items listed below constitute the recording system used in the field for the Tel Gezer Excavation Project. Supervisors are required to insure that all items are present and completed before leaving the site at the end of the season. Few things frustrate and impede the process of research and publication than a lack of attention to detail by supervisors that results in

missing heights, duplicated basket or locus numbers, missing architecture on the final plans, unclear handwriting, poorly written locus sheets, etc. Data must be consistent. If you cancelled a locus, go back and make the change in all relevant places (basket lists, etc. *Try to be diligent in this regard!*)

The excavation notebook includes:

- I. The Daily Diary
- II. Top Plans
- III. Daily Basket Lists
- III. Locus Sheets
- IV. Summary Statements

The most important components of the notebook are the daily diary and top plans. These two items provide the written and graphic observations as they happen in the field. If these are poorly executed, then all other aspects of the recording system will fail. The second most important component is the locus sheet. This includes the synthesis of all the data from the daily excavation. All the other components are bookkeeping and can in theory be reconstructed by staff in the off season using the daily diary and top plans.

I. The Daily Diary

While locus sheets must be succinct, the daily diary is more flexible. Feel free to write your observations and ideas about a particular locus. The diary is a good place to “process” your ideas and theories about your area. A good notebook entry is constantly posing questions of interpretation, forming hypothesis of explanation, exposing flaws in earlier explanations and, yes, revealing mistakes in excavation. The only unforgivable mistake is not mentioning a mistake. A notebook of high quality is easily distinguishable because someone completely unfamiliar with the area can read the notebook many years later and easily understand what had taken place in the course of excavation. The reader will easily be able to follow the progress of excavation, interpretation, and reconstruction, without having to guess what was there.

Use sketches and plans to help your narrative, if needed. Indeed, if an excavator is faced with explaining a particularly difficult problem, he/she is encouraged to make drawings of it, so that someone else may have the opportunity to re-interpret the issue.

Introductory Page

Whether beginning a new square, or continuing in a square opened from a previous season, you should write a short introduction at the start of the season, which includes at the minimum the following:

1. A description of the location of your square/area.
2. The relationship/context between your square/area and the surrounding squares and/or features in the field.
3. The purpose/rationale of opening your square, or continuing excavation in it.
4. In addition, each diary should include the location and the height of datum point(s) that will be used that season.

Daily Introduction

Every day in which you go into the field you must open the daily entry with a brief introduction describing the plan for the day's work and any problems which have arisen since the previous day of excavation. In addition, any goals, questions, and hypotheses, should be noted.

Locus entries

The locus entry need not be elaborate, since most of the important technical information (color, dimensions, inclusions, etc.) is contained in the locus sheets. A locus entry should always contain the answers to three basic questions:

- a. Why was this locus opened, or begun?
- b. What was this locus and what did it mean?
- c. Why and when was this locus closed, or stopped?

The narrative part of the locus entry should concentrate on problems raised during the course of excavating the locus within the context of the trench (or larger archaeological feature, such as a building) in which you are working. This part of the recording system is the place where you share your musings and ideas about what is happening in the trench, and the problems of interpretation. In addition, a locus could be shared with another square (e.g. a wall that is located in two squares); in this case, both square supervisors will be working together in the documentation and excavation of the locus.

Use the notebook to note elevations, photo numbers, etc., but please be careful to label exactly what these are. Under no circumstances should you have numbers and calculations floating on the page without identifying to what they refer.

End of Day Summary

At the end of the day write a short End of Day Summary. This short narrative simply summarizes the activity in the square for the day, isolates problems in excavation, and sets priorities for the next day's excavation. In addition, it is very helpful to also write end of week summaries. These synthetic discussions become useful to both the excavator and later staff members consulting the notebooks after the excavation is concluded. Having to explain the square will help in its understanding, and will make the final report much easier.

II. Daily Top Plans

The daily top plan is a "visual diary" of each dig day. By the end of the season, you will have some 20-30 top plans of the excavation progress in your area. The daily top plans are often the most useful tool for analyzing an area since all of the crucial information is there. Although it does not need to be drawn on the same level as the general plan by the architect, the more accurate, neat and clear the daily top plan is, the more it will help those who

may need to check it later in the off-season. The daily top plans will be drawn at 1:50 and be oriented with north at the top of the page.

Tracing plans

When a wall first emerges in the field, you will have to draw them onto your daily top plan. Later, with a light table, you can copy the architect's plan to insure accuracy. Trace a clean plan each day.

Legend

All daily top plans will carry a legend. The legend is written in the upper right corner of the page. It includes:

1. Square Number and Field
2. Day and Date
3. Scale (i.e., 1:50)
4. Name of the supervisor
5. First and last baskets assigned that day.
6. Any symbol, hatching, abbreviations used on the plan

Marking the Daily Top Plan

Below is the color code used for marking data on the Daily Top Plan:

- Red - all loci that are not walls
- Green - wall numbers
- Black - basket numbers
- Blue - heights taken with the surveying level
- Pencil - hatching zones currently under excavation

The last entry about hatching in pencil requires elaboration. The objective is to crosshatch as a way of indicating where in the locus you are digging at the moment. In this way, we have a record of where the pottery from a certain basket originated. If we discover during sorting that there is a mixture of later and earlier pottery, we can suspect a pit and know precisely where the pottery came from. Use a pencil and a ruler to hatch diagonal lines where the digging is occurring and where the pottery is collected. Write along one of the lines the basket number in black ink assigned to that locus. If the bucket gets full and you need to assign a new one, hatch lines going the other direction and write the new number along that line. It is good practice to write in blue ink the *closing height* for each basket next to the basket number in black. If at a later point we need to reattribute baskets to a different locus, we can easily see the closing elevation for basket.

Additional comments about the Daily Top Plan

1. Heights should be written in blue ink directly onto the top plan. If you have several elevations for that day, label each elevation by number. Indicate an X on the top plan where the elevation was taken, and assign a number to that spot. Then list the numbers with the raw elevations in the margins of the plan. Label all lists of elevations (e.g., top levels, locus 55, etc.).
2. Write all locus numbers in boxes.

3. Show the extent of the floors that you have revealed. Show its texture and use symbols.
4. Write down the name of any special find, together with its basket number and an accurately measured indication of where it was found. This can be useful in the future if we want to make a schematic plan showing where certain special finds originated from.
5. While it is not normal, sometimes a feature is excavated before it is drawn by the architect. This means that your drawing, measurements and descriptions of where it stood and how it looked is all we have. Therefore, maintaining accuracy in your top plan is a great idea.

III. Daily Basket List

Each square will contain a list of all daily baskets associated with the square. This will consist of a running tally of each basket. See description and discussion in Section 6.

IV. Locus Sheets

The purpose of the locus sheet is to unify all that we know about a particular layer or feature. While digging a locus, all relevant information is hand-recorded in the daily diary. Please note that the locus sheet is NOT a field diary (some supervisors might use a locus sheet in the field as a guide to excavation and recording). You are supposed to write a summary of conclusions you reached about a locus. If you wish to elaborate on how you arrived at your conclusions, or give more details, you can do so in your daily diary. Be sure to double check heights!!

We class archaeological loci into six broad categories:

1. Sediment and Debris
2. Floor/Surface/Road
3. Wall / Structure
4. Feature/Structure
5. Pit / Robber Trench / Foundation Trench / Posthole / Well / Cistern
6. Burial

Although these six categories represent six distinct types of processes that have unique characteristics, nonetheless they also have many shared attributes. The locus sheets provide a level of standardization so that even different types of features, can be easily compared with each other across the site.

Fill out as much information as possible in the field. The locus sheets are set up so that the sections **Introduction, Location and Dimensions**, and **Physical Properties** can be completed in the field. Generally, the sections **Relationships** and **Documentation** will need to be completed at the base camp over a series of days. Pay special attention to **Relationships**, where important stratigraphic information in the form of later and earlier tangent loci is recorded.

At the end of the day, you must enter certain key data about each locus into a basic data table on the computer. This table is linked by the computer to the locus sheets, so if you change any information on the master index (such as the stratum or definition) the computer will automatically update it on the locus sheets. With the closing of the locus, all the remaining information is typed into the computer. For those doing the data entry, you will see that there is a “home page” with buttons identifying all the relevant tables. You simply click the mouse on the correct button and the table will appear, prompts and convenient buttons are also included to help you with navigation.

Verbal Description - The locus sheet is broken down into categories to help you write the important contents more easily. We have also included a list of items on a separate sheet (to take out to the field) to include in writing your verbal description. By far the most important elements to include in this section are associations between the locus and all adjacent features and deposits.

NOTE: The locus sheet is an honest statement of your opinions and interpretations. Nothing more. If you are in doubt about a certain point or if there is a disagreement, say so, giving the alternatives and your preference. If you change your opinion about a conclusion, go back to all relevant locus sheets and *add* a comment. There is no need to erase your earlier opinion or rewrite the card.

V. Summary Sheets

The last component of the Notebook is summary lists. In addition to the Daily Basket List for each square, there should be a list of loci assigned and an end of season report.

A. List of Loci Assigned during the Excavation Season

In the front of your notebook, keep a running list of loci which you assign during the season. This will help you keep track of them. It will also make it easier for future excavators to know exactly what is the last locus number that you assigned. Please note if a locus is unexcavated at the end of the season. Also note in the list the date that the locus was assigned.

B. End of Season Summary

At the end of the excavation season each supervisor must write a short summary of the excavation of his/her square(s). This summary is an attempt to provide some type of synthesis of the square in relation to the stratigraphy of the field. It is these summaries that become the basis for the final report.

Make sure that you include:

- 1 Phases of the architecture and their correlation with sediment and debris deposits.
2. Any chronological indicators which may point to the date of a particular phase or phases. These chronological indicators may have been provided by pottery, coins, or general ruminations in the course of the season.
3. Important loci, especially those marking major stratigraphic changes.

4. All problems and unresolved issues encountered during the course of the excavation.
5. Suggestions for future work in your square.

VI. “Harris” Matrix

Several archaeologists use the Harris Matrix. The method was introduced by Edward C. Harris (*World Archaeology* 7/1: 109-19). The value of using a Harris Matrix is that it forces you to analyze and organize your loci stratigraphically. The downside is that supervisors tend to get lost in the details of the system and are not able to see the larger picture. Another downside is that the Harris Matrix does not really allow for ambiguities in the archaeological record, especially when some stratigraphic relations are not able to be established due to formation processes.

5. Recording of Material Culture: The Daily Basket List

All pottery, bones, special finds, and organic remains must be registered and given a basket number. There are three steps to this process:

1. Assignment of basket numbers from the Field Supervisor/Field Archaeologist (from the “Bank”) to each square supervisor.
2. The Daily Basket List: This is a running log of basket numbers assigned to your square
3. The Bucket Tag and/or MC (material culture) tag

A. Daily Basket List

At the start of the season, and periodically as needed, you will be assigned a block of numbers from the bank. Each Field will have its own bank of numbers for the various squares in the field.

The key to the recording system is the basket number and the locus number. When you begin the excavation of a locus you will assign a basket number to that day’s excavation. Any pottery and other material culture object’s excavated that day will receive the same basket number. All artifacts will be associated with the basket number assigned to the excavation process of that particular locus. If there are special finds, the field archaeologist might decide to separate each object with its own basket number.

Basket - The five digit number you write in here is based on your bank and are always given in running order. Be careful not to assign the same basket number twice. The only items collectively registered are potsherds and bones: Pottery goes into a bucket with the basket number and marked with a tag. Bones go into a bone bag which is similarly marked. All individual whole vessels, organic material for analysis, special finds such as metal objects, scarabs, figurines, grinding stones, etc. should all be given *separate* basket numbers.

Locus – Enter the locus number.

Square - Enter the square that the basket was excavated.

Upper/Lower levels - “upper level” is the highest point where you started collecting pottery for this basket. The “lower level” is the lowest point where you stopped. In many cases, the upper level is the same as the previous closing basket. It is generally good practice to take an elevation at the lowest point of the locus when you close a basket since there must always be a closing height on the basket. Some are lazy about this, but if we need to reattribute a basket to another locus, or understand more clearly where a basket originated from, we need the lower levels!

Stratigraphic Comments - For this column mention briefly any stratigraphic data as it relates to the Tel Gezer phasing/strata and/or descriptions or comments on the character of the locus you are excavating. You may also note any special finds.

Contents/Material Culture – List all material culture and objects excavated with the locus and basket number.

B. Pottery Bucket

In brief: (1) You begin with the Daily Basket List (hereafter, DBL) by writing in the relevant information. (2) You then fill out two bucket tags. You attach one to the bucket handle with a string. The other you place inside the bucket in case the one tied to the handle gets torn off and lost. If you have assigned a new locus number, write it on the parallel log on the Daily Graphic Diary. (3) Finally, use a pencil and ruler to hatch diagonal lines on the area of the plan where the pottery will be taken from, and write the basket number you have given in black ink along one of the hatched lines.

Buckets with pottery for restoration are marked with a circled red "R" on the upper right hand corner of the tag. Supervisors are encouraged to use baskets as a way to maintain separation within a given locus, i. e. distinguishing pottery in debris above a floor from pottery on the floor itself; or separating pottery found in the many layers of an MB rampart.

C. Bone Bags

Choose a large enough bag to contain the quantities that may be coming from a locus. On the bag write: date, locus number (enclosed with a circle) and basket number. And by all means, don't let the bag get too full! Keep the bone bag in the pottery bucket so volunteers do not confuse which bone bag belongs to which locus/basket. At the end of the day, collect all bone bags separately so they do not get left in the bucket for pottery washing.

C. Processing of Artifacts

All artifacts will be processed in camp. The artifacts are sorted according to pottery, bones, soil, and material culture (samples and objects).

Sorting - This is done at the kibbutz. The pottery (and maybe the bones) is washed by volunteers with the help of staff. It is then sorted daily by the various area supervisors joined by the other team members.

The pottery is read by the project directors and is recorded into one of four categories:

- (01) loci where all diagnostic sherds (e. g. rims) are kept for further study;
- (02) loci lacking stratigraphic value (e.g. topsoil, an insecure context, or disturbance) where the sherds are discarded;
- (03) restorable loci where the pottery is kept and sent for restoration;
- (04) loci on hold which are temporarily kept on the side pending further excavation that may clarify whether the locus should be given for restoration or for some other reason.

Throw/Keep columns - We keep all rims and other diagnostic sherds (such as specially decorated or treated ones) from good loci. Write down the number of diagnostics kept under the appropriate period column. All non-diagnostic body sherds (bo), handles (ha) or bases (ba) are discarded. But do a quick count and write down a numerical estimate so we have some rough idea on how much we threw out.

Comments - A brief memo on anything special that showed up during the sorting (e. g. a fragment of Mycenaean IIIC, or perhaps a reference to the presence of later pottery indicating a possible pit or other intrusion).

The main types of material culture are:

1. Pottery
2. Animal bone
3. Human bone (bag according to specifications of faunal specialist)
4. Shell
5. Roof tiles
6. Mortar
7. Wall plaster
8. Iron objects (bag each object separately, unless fragmentary)
9. Bronze objects (bag each object separately, unless fragmentary)
10. Bone objects (bag each object separately, unless fragmentary)
11. Terracotta objects (bag each object separately)
12. Glass objects (bag each object separately, unless fragmentary)
13. Coins (bag each coin separately)

6. Field Excavation Methodology

In this section we cover some general procedures for field excavation processes. Remember that your area (square) is an artificial entity, part of the grid system. We are not excavating individual squares but remains of ancient buildings and cultural horizons. Your area is part of a larger field. In addition, we are not individual excavation units but a larger team of supervisors and volunteers.

- A. Excavating and Defining Loci
- B. Field Conservation
- C. Special Finds
- D. Architectural and Section Drawings
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A. Excavating and Defining Loci

Opening and closing loci

Whenever a new feature appears within a locus, you close the old locus and open a new one. Thus, if you are excavating in Locus 1035 and a wall appears, close 1035 and open three loci: 1041 for the wall; 1042 and 1043 for the debris on either side of the wall. Do this even if it seems that the prior deposit (1035) continues. Failure to do so could result in a situation where a locus is defined as above and below another locus.

1. If a wall appears in two squares, give it the same wall number if possible. Be sure, though, that layers in both squares are properly noted as associated with this wall.
2. If a wall was given separate numbers earlier on, but you now realize that they are one wall, cancel one wall number and merge it into the other. Be sure to indicate this merging on the now canceled wall card. Just because a wall (or locus of any sort) has been merged does not mean you don't have fill out the locus sheet. Any information normally on a locus/wall card should appear on the canceled one, with the sole exception that you must add the locus number it has been joined to.
3. If the same debris-layer appears in two different squares, it is best to leave them as separate numbers. However, indicate on the locus sheet and on the Harris Matrix that they are equivalent. At a later stage, it may be advisable to cancel one and merge it. But since you have no idea what is below this layer, it is not wise to introduce possible confusion by having a layer extend over too broad of an area.

Floors and Surfaces

1. A floor does not always have to be consistent in its make-up. Some are composite. They can be beaten earth in one part, cobbled in another, plastered in a third.
2. The dividing line between deposits above or below a floor is the line of the floor itself (i. e. the floor make-up). The deposits from above a floor all point to the period of its last use and/or up to the time when the next

floor sealing the current locus was laid down. On the other hand, artifacts from below the make-up of the floor were deposited at the time of the floor's construction *at the latest*.

3. In many cases, the floor is a thin layer of beaten earth and insignificant of finds. This being so, any pottery collected while digging through the floor itself (floor make-up) is considered to be part of the deposit below the floor level.
4. If you encounter a series of floors looking like striations one on top of the other and totaling some 10 cm thick, don't try to assign a locus to each surface. Assign a single locus number to the floor build-up as a whole. If you want to effect more separation between each floor layer, you can do this with separate baskets.

Walls

1. Walls can be built of stone along part of its way, but then change to bricks along the rest of its length.
2. Be sure to note which layers are associated with a wall.
3. Note how many courses high a wall is preserved. Measure its width. Perhaps it underwent several re-buildings. Maybe it was even in use for a long time, with several phases of layers and surfaces abutting it. Count them.
4. Pay attention to foundation trenches. Most walls have them, but some (usually smaller partition walls) were set down on the surface without a foundation trench (abbreviated F. T.). Sometimes it is difficult to see a foundation trench. But if you identify an F. T., excavate it separately from the surrounding soil
5. Never trench along a wall. Trenching destroys stratigraphic relationships. If the wall does not reach a balk or does not run into it at right angles: (1) Create a *subsidiary* balk at right angles to "tie" the wall to one of the primary balks in the square. (2) Cut a narrow trench perpendicular to the wall so the layers that abut the wall can be viewed in section and studied. If you are digging EB, and it is a curvilinear wall, you may need to cut a wedge-shaped slice to get the best angle at the juncture of the wall and balk. Record the surfaces that abut the wall as you go (as well as tagging them in section).
6. Never cut a wall's stratigraphic relationship to one of the four main balks. This rule actually applies to any feature, be it a bin, silo, hearth, oven, etc. Everything must be somehow tied to one of the four main balks, otherwise the stratigraphic relationship is gone.
7. Study well the juncture of surface layers with walls and relationship of wall to wall. Do the walls *bond together* or merely *abut*? (Bonded walls are contemporary, while abutting walls may be or may not be contemporary)
8. Once you go below a wall (i. e. the wall is "floating") be sure to change the locus number since you are clearing descending to an earlier level.

Mudbrick walls

1. Distinguish between a wall and brick debris which is treated as a soil layer.
2. Bricks were made in wooden molds with a binder (usually straw and sometimes potsherds inside) and then sun dried. They may or may not have been laid with mud mortar.
3. Usually the top of the bricks have suffered from erosion and so you won't see the line of the brick wall, the shape of the bricks, or the mortar lines to begin with. If you suspect a brick wall, cut off a few centimeters, scrape well with a large hoe, scrape it further with a trowel, and finally use a soft brush to see the separation between the *in situ* bricks and the collapsed or eroded brick debris. Spraying water sometimes helps the color of the bricks to stand out better. If mud plaster or lime plaster is still preserved (most walls were faced with mud plaster), you will see the evidence of this in section.
4. Once the wall line has been established you want to go down on both sides of the wall (opening two new loci for each side). Keep in mind that brick walls are often battered out near the base. If the wall still has plaster on it, it is usually easier to follow the wall. Otherwise, be careful that you do not cut into the bricks of the wall itself. Sometimes erosion which occurs at the top of the wall gives one a false impression of the original width of the wall.
5. The different colors one finds among various bricks within the same wall is probably due to several sources of clay being used in making the bricks.
6. Remember that a lack of stone foundations to walls at Gezer makes it much more difficult to identify where the bottom of the wall is - but you must still identify it.

Debris-Layers

Three groups of questions to ask yourself about all deposits or debris-layer loci that will help you interpret the stratigraphy and fill out your locus sheets.

A. *What is its physical composition?*

1. What actually comprises the layer? (decayed mudbricks, silt, ash layers, etc.)
2. What is its color? (Munsell charts are helpful. More important is to use basic and meaningful terms like red, orange, pink, brown, gray, yellow, white, etc.)
3. What about particle sizes? (Wentworth charts are also helpful, but if lacking one, write down what most people would consider to be boulders, field stones, cobbles, pebbles, sand, silt, clay, etc.)
4. How compacted is the layer? (Loose, compacted, well-packed, etc.)
5. How are the particles dispersed? (random or chaotic suggests a fill; graded bedding suggests water sorting; laminae suggests a surface build-up.)

B. *What are the layer's physical dimensions?*

1. What is the horizontal extent of the layer? Does it cover only part of the square, the whole square, other continue into adjoining squares?

Be specific in your description. Draw its contours and borders on the daily graphic diary.

2. Give an idea of thickness, based on the opening and closing heights for the locus.
3. Does the layer dip? If so, to what degree and in which direction?

C. What is the layer's stratigraphic relationship to other loci?

1. Does the layer run up to a wall? Go over a foundation trench? Pass under another layer? Does it cut another layer? Or is the layer cut by an intrusion from above (pits, cisterns, burials, foundation trenches, etc.).
2. Relationships are among the most important elements to include in writing a locus sheet that is often missed by less experienced archaeologists. We highly recommend verbally describing relationships of loci to one another and graphically showing it on the daily diary. In other words, visually indicate the extent of the floor. If it abuts the wall, use an arrow (see list of symbols) to indicate that. In this way, verbal descriptions are backed up by visual data.

Pits or other intrusive elements

1. Pits are not the only thing dug down into earlier layers. One can also find silos, burials, cisterns, foundation trenches, etc.
2. The principle of removing all deposits in the *reverse order* of their deposition means the contents of any pit or other intrusive element must be excavated out before the earlier layers surrounding it.
3. The soils which fill pits are usually not as compressed as layers which have been walked on. For this reason, pits can sometimes be identified as areas of loose soil or gravity-sifted soils and rubble, or a regularly contoured depression in a compact layer where pressure has caused the compacted soil to sink into the less compacted hole beneath.
4. If you suspect a pit, first try to delimit it. Scraping the soil flat with a trowel can help reveal the contours of a pit or other area of disturbance nicely. Then section the contents to the bottom. Usually you just section it in half, leaving what remains for drawing a section. Extremely large pits should be quartered.
5. After the contents of the pit have been removed, then section the installation itself, remembering that like a wall, it is a feature which must always be kept connected to one of the four main balks.

B. Field Conservation

Metal objects

1. Do not wet or wash metals. Place them in the sun and let them dry completely. Try to clean off any organic material or soil. After drying, brush gently to clean. Corrosion will not proceed further unless humidity exceeds 60%. So don't store metal objects in plastic bags without holes punched in them, since the condensation will lead to corrosion. Avoid

using rubber bands or adhesive tapes of any kind on the metal objects since they contain sulphur.

2. If iron objects or fragments are too mineralized to remove, you can apply PVA (polyvinylacetate) to facilitate removal. PVA is also good for skeletons.
3. To use PVA: Douse the material and soil matrix around it with a 6% solution of PVA dissolved in alcohol. You can squirt on the PVA from a bottle or paint it on with a brush while the material is still moist. Really soak the material; don't paint the surface lightly. After its dry then remove. The infused plastic will strengthen the object structurally.

Carbon-14 collection

1. Thoroughly clean around the area you wish to sample with an air puffer. Clean off your trowel with water and wave it in the air to dry.
2. Collect up to one-half a plastic (never use paper) sandwich bag of carbonized material (more if possible). Although modern radiocarbon methods use less than this, it is always wise to have more. Although wood is good for C-14, the best dates come from short-life samples. For example, in the case of grain, we know that the wheat or barley was cut down the same year the grain was burnt. With wood samples, on the other hand, you may be dating the inner part of a tree ring, rather than the latest ring which would be contemporary with the time that the tree was cut down. Wooden beams also have the habit of getting reused in newer structures.

Flotation

1. Fill a bucket up to half-way with soil a sample. Pour in water to the top and stir. Ecofacts will float to the top. Scoop them with a metal strainer (one-half sq. cm. mesh) and dump onto newspaper to dry. Be careful, as the wind can blow away the sample while it is drying. Be sure to tag the bucket containing the soil sample.
2. After you do flotation, remove the tag from the bucket and place it with the sample which is now drying. Later, collect and place into a film canister or small box for labeling.

C. Special Finds

Marked handles are *not* special finds. They go into the pottery bucket with the other sherds unless you are told otherwise. Special decorated sherds (imports, etc.) may be treated as special finds, though if there is a very large amount, they should simply be put in a pottery bucket.

Label all boxes on top, bottom and one short side. The information on the label should include the area, basket number, locus number, square and contents.

Carbonized seeds: Wrap all seeds in aluminum foil and put them into a labeled cardboard box - never a plastic container.

Charcoal: Wrap in aluminum foil and place into a cardboard box with its label. Do not write “material for analysis” on the box. Be specific as to what the material is.

Metal: Place into plastic zip-lock bags which have holes punched into them with a hole puncher or a pen or nail. This allows the metal to breathe. Tie a tag outside the bag.

Loom weights: These go into a box which has been labeled as to its contents. It is a good idea to pad them with paper to prevent damage. Every loomweight must have its own registration number. If there is a cache of more than 10 weights, they can be registered with one number and they will be given slash numbers later on.

Bone, glass, beads, or anything else special should be wrapped in acid-free paper and put into a labeled box. Each bead should be given its own registration number. If the cache is very large, one number can be used and they will be given slash numbers later on.

Flint goes into a paper bag. The bag is written on just like a tag and closed up by folding over the top.

Remember: Any questions or uncertainties =- it’s best to discuss it with the other supervisors and the field archaeologists. This way we can be consistent and avoid the discrepancies which will eventually drive us crazy back in Jerusalem when we process the finds!!

D. Architectural and Section Drawings

Architectural sections are drawn 1:50 scale. These are generally drawn over a length of several squares to give an understanding of the architectural relationship of walls attributed to various phases.

Instrument Height

There is a space to write down the “transit level” (height of instrument). You calculate the height of instrument by adding the elevation you read through the eye piece of the transit (reading only the central horizontal stadia hair) to the height of the bench mark. For example, if the bench mark is 89.75 m, and you read 1.05 m through the eye piece, then the height of instrument is 90.80 m. Heights for the various layers and features are then taken by subtracting the height of instrument from the elevation you read through the eyepiece. Thus, if the top of a wall reads 1.65 m, the absolute height of the wall is $90.80 - 1.65 = 89.15$ m

Section Drawing

1. Scale is 1:20

2. Indicate which section is being drawn, e.g. “Northern Balk of Square A-3.”
3. Give name of drawer, name of supervisor (who must always check the section to see that it is drawn correctly), area, square in which section is drawn, date.
4. Draw far enough at the top to allow additions to be made to the bottom of the section in succeeding seasons.
5. Clearly indicate the datum line (the level of the string from which you are measuring).
6. Note which squares continue to the left and to the right of the section drawing.
7. Don't try to draw every detail (e.g. every charcoal chunk or fallen brick). In many cases, this leads to meaningless detail that confuses the reader. You are not a camera. You are drawing a *representation* of the layer. More important is that you are *interpreting* the section. The focus is the debris units or layers and their relationship to architecture or other features. For example, if you have a layer of fallen and decayed bricks mixed with flecks of charcoal and bits of pottery, indicate the thickness of the layer and its relationship to what lies above or below. Draw some of the fallen bricks, charcoal and pottery to give the viewer a feel for the character of the layer. Write its definition clearly on the layer. If the section is especially important, it may require more artistic detail.

E. Field Photography: The Photographic Dimension

Photography in the field is a daily event. Only a selection will be published, with the remainder filed in the archives for future reference. We typically photograph every phase of progress. Photos are taken of finds *in situ*, special finds, and sections.

In the 2000 season we will attempt to have cameras in the field for ad hoc photography of elements that the supervisor deems necessary, as a back up and addition to the professional photographer.