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John H. Mead

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## ARCHAEOLOGICAL FIELD TECHNIQUES AND PROBLEMS

by

John H. Mead

Many of us, I am sure, would like to believe that the days of historic site vandalism are something of the past. Unfortunately, with the upcoming Bicentennial, more and more questionable archaeological work will undoubtedly occur and many rationalizations will be offered for the lack of professionalism.

Certainly some of the reasons will have validity— the growing need for salvage archaeology, the lack of funds, deadlines— but these in no way can justify careless work in the field or the failure to apply basic methods in obtaining information from the earth. Whether by professional or amateur, well-intentioned or not, it will still be vandalism, and the real contribution that archaeology can make to the understanding of our past will be lost. We cannot undo the damage that may be committed— at any price.

This paper is not offered in the belief that all field work must be conducted in a certain manner, but rather in the hope that a better insight can be gained of some of the problems encountered in the field and how they can possibly be avoided with just a little care and a better understanding of the archaeological principles involved.

Others have clearly indicated the need for preliminary planning and research as well as the various methods that should be employed in site layout and recording, and I will not stray into these areas except to emphasize the need for adequate site layout, with both vertical and horizontal controls. It is by these controls that the archaeologist must record his findings and thereby provide the basic data that researchers in associated fields will and must rely on.

### *Excavation: Why and How*

The many problems of site, time, money, historical importance, and purpose, among others, must be taken into consideration before excavation is begun, and with all these factors in mind a meaningful approach will hopefully ensue. Yet even before considering these basic problems one all-important question needs to be answered: why do we dig.

Everyone would agree that the fundamental purpose for all archaeological work should be knowledge— knowledge of a past that starts, in some cases, yesterday and stretches back to the beginning of time. Fine; we now have given our efforts respectability by espousing the high-sounding principle of knowledge. Who is going to fault them?

The important question, though, is *what kind* of knowledge are we talking

about? Surely even the "pack-rat" sincerely feels he is making a valid contribution to knowledge, even though it is usually just for his own satisfaction and benefit. Let us review some of the guidelines this Council has already established for this knowledge, principally,

1. That this knowledge should be available to everyone.
2. That the material excavated, along with *meaningful* data, be available for study.
3. That the material and data be preserved for the future use of others.

It is of great importance that we clearly stress the kind of knowledge we are talking about, because this determination must control every stage of the field work. If our purpose is as outlined above, then the "how" of digging will be controlled by the "why."

The basic principle that controls any archaeological excavation is identical to that employed by geologists in the study of earth formation and continued change. By making use of the simple axiom that various periods of time will be recorded clearly in strata, one atop the other, generally with the oldest at the bottom, great knowledge of the earth's history has been revealed— permitting us to understand events that occurred long before anyone was around to record them.

Sometimes the strata are greatly deformed and very complex, yet by their complexity they can reveal more knowledge than simple strata. This applies equally to archaeology.

For example, let us look at a typical archaeological site, One Story Barracks at Fort Montgomery, 1776-1777. Figure 1 shows six levels comprising a period of 192 years. The lower five levels (1 through 5) up to the bottom of the deposit of rocks represent a period of only eighteen months (from the time of the construction of the barracks to its destruction). The level above (6), records a period of 190 years, from the time of the barracks' destruction to the present. The stratification, clearly, must determine the means by which excavation should be approached if the "why" of digging is to be conformed to, for only in this way can one begin to understand and interpret events and details long hidden from view and forgotten.

For those who feel that stratification is an insignificant detail I heartily recommend the use of any method that will remove the soil in the least amount of time and at the minimum expense. It will save a lot of tedious digging, and you will not be bothered by having many artifacts to clean, catalog, or assemble. It will also save troublesome paperwork and disquieting knowledge.

Stratification to the archaeologist, far from being an "insignificant detail," is the controlling factor. But where does one start? If work is being done on a site where the location of all the structures is known, the answer is relatively easy. Normally, however, a schematic sketch or a rather vague map is the only clue— and in many cases there is nothing more than a document indicating that a building

Fig. 1— Trash midden at One Story Barracks, Fort Montgomery (1776-1777). —*Palisades Interstate Park Commission photo.*



might once have existed.

When the latter is the case (and hopefully only after exhaustive documentary research is completed) the archaeologist must draw on his professional savvy and scientific reasoning. With a prayer (and usually by accident) he might find what he is looking for. If he doesn't, he can proudly announce to the world that he knows where the building was *not* constructed. Or, if he wishes, he can call his efforts an "exploratory dig."

A method used by many to locate structures beneath the ground is the digging of what is called a test hole. It provides a way to get a quick look at what lies beneath the surface. If carefully done it can, at times and depending on conditions, reveal the various strata beneath and, if one is fortunate, evidence to indicate the object of the search. Do not, though, rely on this method too heavily unless you are sure the conditions are ideal. Many times I have seen a test hole completely fail to find a structure that actually lay directly beneath the spot tested or not very far away. Let me give a few examples.

While searching for the Revolutionary War hut sites at New Windsor, New York, 1782-1783, test holes failed to reveal their location. Why? The reason, as we later learned, was that the test holes went through nothing but topsoil, clay, and clay subsoil. There was nothing at the juncture of these levels (the occupation level being so thin at the juncture of the clay and clay subsoil) or in the levels themselves to indicate that this area was a part of the site, even though many holes were actually dug in the center of buildings.

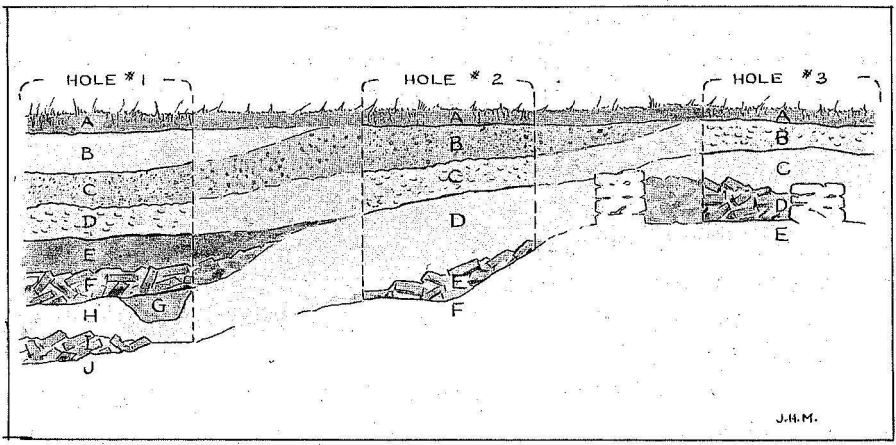
Another example of the failure of test holing occurred at Fort Montgomery while searching for the storehouse. Even though we knew the general location of the building from maps, every time a test hole was dug we would only find glacial soil beneath the topsoil and the hole would immediately fill up with water. Upon observing these conditions in hole after hole, we were sure the building site was elsewhere or completely destroyed, and the hopes of finding it were rather slim.

By resorting to the use of an exploratory trench at regular intervals over a large area, however, the building was quickly located due to the more continuous view of the stratigraphy the trenching allowed, and we could then begin to understand the reasons for the misleading evidence from the test holes.

Personally, I prefer the use of a trench in searching or exploring for a site, even though it requires more time and effort than test holes. The better view (not to mention many other reasons) of the conditions beneath, I feel, warrants its use. Extremely fragmentary indications of stratification can thus be easily observed and established.

Now let us assume we are positive from test holing, trenching, documents, or other evidence that we have the right location of a structure. What is the best way to conduct the excavation?

Fig. 2— Problems in strata designation which can result from a site at which a cut has not been established and strata “stepped.”



Not all will agree, but the most effective means I have found is to establish a cut across the site and then to "step" the various strata encountered. Some of the advantages gained are

1. There is less danger of mixing artifact material of different levels.
2. Structures encountered can be left in place as one proceeds.
3. By "stepping" with the use of the trowel, very thin levels can be established much more clearly than by any other technique I know of.
4. The horizontal surface and vertical face of each level of soil will always be clearly visible as one works.
5. The most important advantage I have found to this technique is that on a site of long occupation or of many levels the danger of having the same level designation for different levels is thereby avoided.

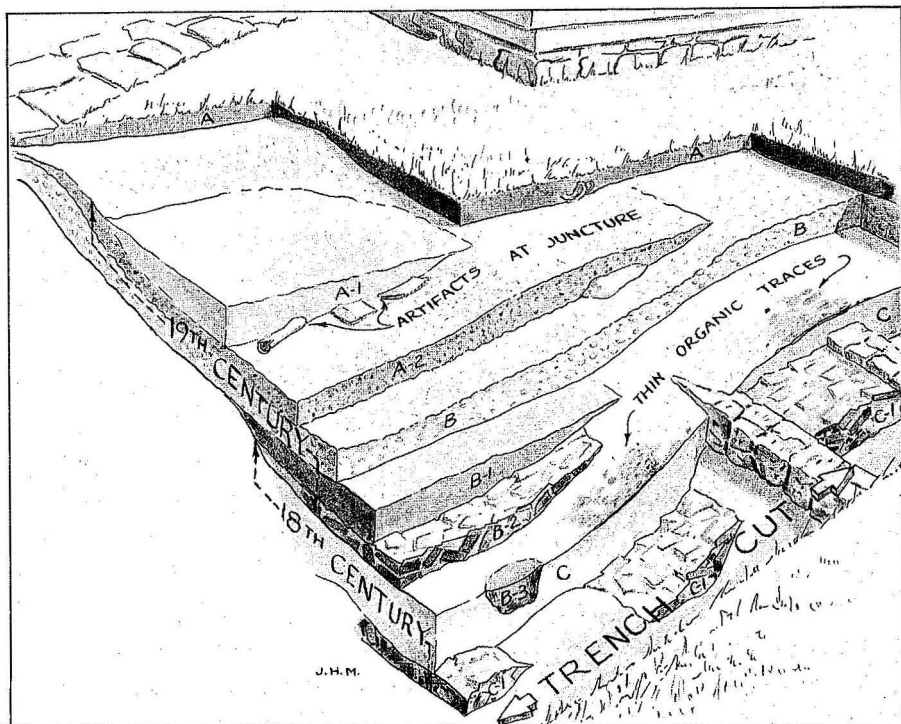
Figure 2 illustrates this last point. Let us say we have started our excavation at three different spots. As you can see, the only level where there is agreement in level designation is in level A. Nowhere else do the level designations agree. This might seem unimportant at the time, but it can lead to hopeless confusion for anyone trying to interpret the site on completion and will certainly lead to incorrect evaluations— especially as to the age of the artifacts and their relationship to one another. I feel anyone encountering this type of data at a later date might justifiably question the entire work employed in excavation.

By working off our trench-cut level by level, we gain some additional advantages:

1. We can follow levels much more easily, one at a time if desired or if conditions demand.
2. Fragmentary evidence will certainly be more evident, e.g. compaction of soil. Clearly evident will be faint traces of organic material atop a level which might possibly indicate a period of little change. Artifacts at the juncture of all levels can thereby be clearly seen. The artifacts at the juncture of levels are of extreme importance, as they might not belong to the deposit above or the one below, but have been deposited at a period in between. If this is the case, they should be recorded as a distinct level or indicated as coming from the juncture.
3. By removing one level at a time an excellent plan view of each particular level is assured, bringing to light very faint evidence of features which, until examined over a large area, might appear meaningless (e.g. fragmentary foundation walls, paths, etc.).
4. Of great importance is that the danger of confused level designation can now be completely eliminated.

A comparison of Figure 2 with Figure 3 reveals that by "stepping" the same area and removing a level at a time, there can, or should, be no confusion as to con-

Fig. 3— A properly “stepped” excavation clearly defines strata and the relationship of artifacts.





tinuity in level designations throughout the site and variations encountered within levels can be easily subdivided. The designation can be arbitrary, but must remain consistent.

Once the stratification is established, there should be no difficulty in removing all levels one by one if conditions should demand. Do not, however, confuse this procedure with digging levels by pre-prescribed depths—say two inches at a time or six inches at a time. The latter method has very little value and should only be used when stratification is completely lacking, with the archaeologist clearly stating why the method was employed. Otherwise, historic information might be confused to such a degree that many properly excavated sites must be examined before the confusion is unraveled (assuming enough comparable sites relating to that period still remain).

Interpretation of a site is determined by what stratum an artifact came from, its relative position to other artifacts within that stratum, and the relationship of the stratum to the other strata. This is how the information should be extracted from the soil and only by this approach can archaeology contribute an accurate insight into the past. Possibly there is a greater danger today in professional misinformation than in no information at all.

If one approaches a dig with the full knowledge that he is going to methodically strip every bit of flesh off the skeleton, remove the vital parts, and then dump the remainder into a pile, effectively preventing anyone from ever excavating it again, he will, and is obligated to, develop appropriate field techniques that will ensure the recovery of all the knowledge possible.

One field problem, for which I have yet to hear a suitable answer, is what to do with extensive levels of soil that comprise periods of apparently no great interest on a site. For example, let us say that levels C and C1 in Figure 3 comprise the remains of a house built and destroyed in the 18th century and the object of our search. Levels A through B3 are levels deposited from the 19th century up to the present.

Do we excavate these upper levels with the same care we would levels C and C1? Do we solve the problem by removing them as quickly as possible and wish them away by saying they are of no interest? Certainly many factors must govern a suitable answer. In many cases the upper levels are just as important in interpretation of the site as the lower levels. A practical answer should lie somewhere between both extremes. The following suggestion is offered as a possible solution. It will not satisfy all, but it might be of some help to both schools of thought.

I suggest taking a limited and typical area of these upper levels, say 10' x 10' or 10' x 20', whatever might be considered necessary to obtain a reasonable representation, and then excavating this area or additional appropriate areas with the same care you would excavate the levels beneath. This small but very careful dig

Fig. 4— Fireplace and chimney base, officers' barracks and commissary, Fort Montgomery.  
—Palisades Interstate Park Commission photo.



will then serve as an accurate index, though incomplete, for the upper levels. I would still strongly recommend that all the levels in question still be removed one by one. The relative care employed, though, is going to differ from site to site and with varying conditions.

Another problem is that in a normal excavation the site is taken down level by level with a very impressive excavation resulting which shows clearly the object of the search (see Figure 4). The problem, however, is that after using this technique it is no longer possible to see the various levels of soil we went through to obtain the photograph. Certainly series of photographs, profile drawings, etc. can help one visualize the various strata but these still do not offer a complete picture of what was encountered in the excavation.

A technique I will employ on all excavations in the future, which should overcome this problem, will be to leave a "control block" of undisturbed earth somewhere convenient within the excavation. Upon completion it will be possible to carefully step this block down showing the various levels encountered and photographing it along with the exposed foundation, thus giving a better indication of just what occurred on the site over the years.

Other and probably more important advantages to this are that one still retains the opportunity to doublecheck any data that might not be consistent with previous interpretation. Also, after the excavation is completed one understands much more clearly just what each stratum on the site means and, armed with this knowledge and the remaining block of soil, can possibly extract even more information from the site.

A recurring question is where excavated dirt should be placed— after all, it has to be put somewhere. My only advice is to put it somewhere convenient to the dig, but hopefully not on a spot you will have to excavate later. I have found that an outcropping of bedrock is the only safe place. I presume the practice of dumping the dirt in the hole just excavated no longer exists. I would not take any bets, however. There is controversy over whether or not to sift the soil. Again, circumstances should dictate.

Much controversy has also existed over the years about the use of the many mechanical and some electronic tools now employed in excavation: backhoes, bulldozers, mine detectors, etc. Most of these are questionable— *but*— if they are used intelligently and *only* if their use conforms to the "why do we dig" principle, I see no reason why they should not be considered acceptable tools. But let us be very clear that we call them tools and not techniques. There is a world of difference. Upon observing the upper seventeen feet of a fallen chimney from the One Story Barracks at Fort Montgomery (Figure 5), which had required weeks of considerable patience with brush and trowel, someone matter-of-factly informed me that it could have been done just as well with a bulldozer. I guess it depends on

Fig. 5— Upper portion of fallen chimney at One Story Barracks, Fort Montgomery. —Palisades Interstate Park Commission photo.



whether you are mechanically inclined or not . . .

Another great problem in field archaeology is the obtaining of qualified and experienced help. The obvious way to be sure that all field work is done properly is to have personnel with extensive experience. Unfortunately, this experience can only be acquired over a period of many years of digging. Since, at this time, such help cannot always be found, various safeguards should be employed.

The force employed should not exceed the number that qualified supervisory help can oversee. Insist on accuracy in plan and profile drawings for all areas excavated, accompanied with suitable notations that record the relative location of important artifacts, features, and interpretation of levels.

There is no such thing as too many photographs. I have found in addition to 35mm color slides and 8" x 10" black and white prints that the Polaroid camera is an invaluable means of assuring without fear that the record is kept complete while the work is progressing. One should also have knowledge of the artifacts that are being found in the various levels while the excavation is taking place.

It is impossible to detail here all the techniques that can be employed in field work, let alone discuss all the problems. I hope that the foregoing will stimulate a response from others who might have found different techniques useful. One thing should be said in closing, however. If, after an excavation is completed, it is still necessary to run to books and documents to determine the age of the material unearthed, or if findings can only be interpreted by relying on documents and books, or if the data must be forced to conform to pre-conceived ideas or the ideas of others— then assuredly the field techniques which have been employed are at fault.

Remember, we can take handsome photographs, we can make fine drawings, we can use scientific terms that will impress the general public. But in the long run, the information we obtain from the earth will be only as valid as the techniques employed. The name of the game is knowledge. It is up to *you* to determine the degree and at what point this knowledge will terminate.