

1-23-1969

Techniques of Archeology

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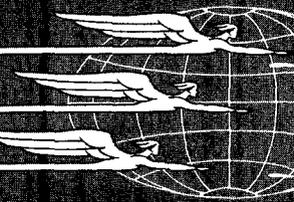


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Recommended Citation

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Review

REVIEW AND HERALD • GENERAL CHURCH PAPER OF THE SEVENTH-DAY ADVENTISTS

January 23, 1969

Vol. 146 No. 4



"Bring Us Together"

See article
on page 3

A MODERN archeological expedition is no treasure hunt. The serious archeologist of today is not interested primarily in finding museum pieces or works of ancient art. His foremost interest lies in the reconstruction of the history of the site he excavates, although he does not despise the objects of utility, warfare, art, or craftsmanship which in the process of his archeological work come to light.

At Heshbon we considered it the primary purpose of our work to find clues that would enable us to reconstruct the city's ancient history and fill the gaps in our knowledge with regard to the city's past, although we were most delighted to obtain as a kind of bonus in the course of our work more than 80 coins and some 240 other objects, such as beads and pieces of metal, stone, and bone, besides potsherds in large numbers and a few well-preserved vessels.

The only way to carry out a thoroughly scientific excavation on an ancient site in Palestine is to follow methods that have been developed during the past 80 years by such pioneers in Palestinian archeology as Flinders Petrie, Andrew Reissner, Clarence Fisher, and especially W. F. Albright, and by more recent scholars who stand on their shoulders, such as Kathleen Kenyon, G. Ernest Wright, Yigael Yadin, and Ruth Amiran. We at Heshbon were committed to scrupulously following the best possible methods in order to obtain the most reliable results.

Ruin Mounds Contain Several Occupation Strata

It is important to understand why when excavating an ancient mound in the Near East a series of occupation layers is found, one lying on top of the other. The reason is that in rebuilding a city the ancients usually did not bother to remove the remains of destroyed buildings after catastrophes such as wars or earthquakes, but simply leveled off the debris and built new structures on top of the earlier remains. In addition, the accumulation of dirt and waste caused the surface of a city to rise in the course of time.

As a result a mound developed. In Arabic such an artificial hill is called a *tell*, a word which has been taken over in Western languages. If one digs into such a *tell*, which is, as it were, the graveyard of a succession of ancient cities, he will find the remains of the latest periods on top of earlier ones. Peeling off layer after layer provides a sequence of the occupational history of the mound in question. However, the layers do not always lie in a nice, undisturbed horizontal po-

sition. They are interrupted by pits and intrusions such as foundations of later houses, which sometimes were laid deeper than at other times.

Since cities were built over natural hills, houses were at all times constructed at different levels. Frequently remodeling of buildings, relocation of streets or courtyards, and other building activities that went on at all times in the life of a city, confuse the picture that the archeologist faces and constantly confront him with problems that can be solved only by the most careful observations during the excavations. The evidence as found must be interpreted and reinterpreted as more evidence comes to light.

Pottery, the Archeologist's Time Clock

An important helpmeet of the archeologist is the humble potsherds in great profusion on every ancient mound. Pottery vessels have always been among the most widely used utensils of the ancients. They served as containers for liquids and food and were used to store books and clothing; they served as pots for cooking, as dishes for eating, and as vessels for drinking. Pottery was easily broken, but since it was cheap, it could readily be replaced. When pottery vessels broke, the sherds, gener-

ally being of no use, were discarded. But since sherds are indestructible, they retain their shape and form even after thousands of years.

Since pottery was always in demand, a great amount of it was produced at all times. As time went on there were changes in shapes and forms, decorative features, and also in the texture of the clay. These changes were small in a lifetime but great over the centuries. For example, it is difficult to see great changes in the pottery from one century to another when the Romans were in control of Palestine, but there is a tremendous difference between Roman pottery and that of the Islamic period or between Roman and Hellenistic pottery.

Much study has been devoted in

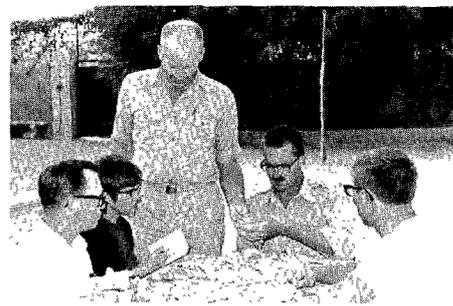
Techniques of Archeology

By
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PHOTOS BY AVERY V. DICK

Anthropologist Robert Little uncovers a headless cat.



Archeologists analyze pottery from Area C.

the past half century to detecting the differences, sometimes small, between the pottery of the various ages. Many doctors' dissertations, books, and articles have been written on ancient pottery, providing the modern archeologist with reliable tools to recognize the age of ancient pottery that is unearthed in great profusion during any archeological dig.

The humble potsherd, which provides modern archeologists with a time clock, is therefore a most important criterium of every archeological undertaking. Without it we would know only that a wall lying on top of another wall is of a younger date than the underlying one, but we would not know whether there were intervals of ten or 100 or 1,000 years

between the construction of the two walls. However, if pottery is found associated with the two walls in question, both can easily be dated and the interval determined.

At Heshbon about a thousand buckets of pottery were collected during the seven weeks of work—68 buckets of pottery came from the debris that filled one cistern. The many tens of thousands of potsherds that were found in the course of our work were washed and dried and then analyzed in daily afternoon sessions at the headquarters. Representative pieces of rims, handles, bases, and spouts, as well as some body sherds, were kept, registered, and drawn. They need further study and should help us to date more accu-

rately the strata with which they were associated.

At Heshbon we attempted to apply careful excavation methods with an equally careful study of the pottery as it emerged from every level representing a new architectural feature. Whenever the color of the soil varied, whenever a new surface appeared, or whenever a wall, a pit, or a floor came to light, the pottery bucket was changed, and careful records were kept.

It was the duty of square supervisors to keep extensive records of all archeological items, walls, floors, surfaces, pits, water channels, layers of fill, et cetera, called loci (plural of locus). They were required to draw them, describe them, and provide

The art of living

BY MIRIAM WOOD

when you're Young

DISSENT AND THE ADVENTIST STUDENT For the past three weeks we have centered our attention in this column on the students in various areas of the world who are in a condition of rebellion, who are revolting against Things as They Are. We've discussed the types of students involved, their differences and similarities, and the home backgrounds that may have contributed to a clearly definable attitude of disillusionment and purposelessness. What the revolting students are saying about the schools themselves was last week's topic.

I hope we've been able to establish two points, namely, that good SDA homes would not have within themselves the negative qualities listed, nor should SDA schools. However, perfection is pretty noticeable by its absence in an imperfect world. This being the case, our discussion would, I think, be incomplete if we didn't acknowledge that dissent, properly expressed, may sometimes seem (or actually be) necessary.

How should a conscientious SDA student proceed in such a case? (I have used the word "conscientious" deliberately; "conscientious dissent" is the only kind I'm prepared to discuss at this particular time.) Actually, I should like to broaden the question beyond mere dissent. Let us ask: How can a conscientious SDA student involve himself properly in the large world, church, and civic issues that are the very warp and woof of modern living?

First, it would be important for him to establish an informed background for himself on two levels—that of the church as a whole and his own school in partic-

ular. Unless you know the facts, it's pointless, unfair, and abysmally unintelligent to start waving banners. A denominational background of the sort I'm thinking about calls for a careful, systematic study of the doctrines of your church—not because you're "taking a course" but because you need to know for yourself what the church believes. After (or during) this first step, the thorough reading each week of at least one denominational periodical will keep you up to date on current plans, attitudes, and procedures.

Next, it's pretty vital that you spend some time informing yourself as to the goals of SDA education. Private schools are entitled to have their own specific goals! If during this period of background building you find yourself out of harmony with basic doctrines, this is a serious matter, a matter for your God, your conscience, and your pastor.

Now as for your school itself, I would think you'd need to make a survey of all the established channels of communication that have already been set up—committees, clubs, societies, organizations of every kind that exist on your campus. Have their goals become superficial as the world has moved faster and faster? Would new charters, new objectives, for already-existing mechanisms be sufficient? Or do some totally new and different organizations need to be brought into existence?

As you get into these complicated questions, I'd advise you to scrutinize YOU very carefully. Because what you may find—what you'll *undoubtedly* find—is that a great deal of work is going to be called for on the part of someone. It's not all flag waving and singing and

high-sounding oratory. People who change the world are most often characterized by beads of perspiration on their foreheads, mute testimonials to their exertions.

If you are willing to work hard, you'll need to set up some ground rules for yourself. For instance:

1. Never publicly criticize Powers That Be unless you've first brought your complaints in person or by letter to the aforementioned Powers and are refused a hearing. For that matter, never publicly criticize until you've allowed time for improvement to take place once you've had your day in court. To suggest a massive procedural change, and to expect a massive procedural change, and to expect this to be implemented within five minutes of your interview is downright ridiculous.

2. Ask yourself whether your suggestion represents real improvement or merely change—which in some cases is only difference of opinion.

3. Resolve to maintain Christian courtesy. Come what may, you'll never regret it—but you certainly *will* regret *not* doing so.

4. Put your own motives under the merciless light of self-examination. You may find that your motivations are not so admirable and so above reproach as you've assumed. It just could be that instead of wanting to move the world, you only wanted to move *you* to the top of the world!

5. Pray for a clear mind, a humble spirit, courage to stand unflinchingly for worth-while causes, and wisdom to identify the worth while from the sensational and trivial.

When you're young in today's world you *ought* to be properly involved in all phases of living. But never forget that the first objective of every human being should be to seek individually the kingdom of God and His righteousness.

measurements and elevations for each of these items and also record all pottery associated with them. The analysis of the pottery, made during the daily afternoon "pottery reading" sessions, was then added to the records. It is from these records, produced by the square supervisors during the seven weeks of excavations, that the area supervisors can write their reports, built on all information obtained during our excavations.

The Techniques of Digging

In order to guarantee the greatest possible control of all archeological procedures on the mound, every digging group of local workmen worked under the watchful eyes of a square supervisor. Each of these groups of workmen consisted of a pickman, one or two hoe men, and several basket boys. The pickman loosened the soil with a pick, often with a small hand pick, and collected all pieces of pottery and objects he detected. The hoe man scraped the dirt into baskets made of discarded automobile tires. Any pottery that had escaped the detection of the pickman was then collected by the hoe man. The dirt was carted to a dump heap in wheelbarrows. The pottery buckets carried labels on which the square supervisors put the information from which area, square, and locus the contents came.

We called the four main sectors of the mound which we excavated "areas" and labeled them alphabetically A, B, C, and D. The areas were in turn subdivided into squares, although some of them were oblongs or simply four-cornered plots of various shapes. Between the squares we left one-meter-wide balks, which we trimmed as smoothly and vertically as possible so that the layers of occupation would become clearly visible.

No architectural features such as walls, water channels, floors, et cetera, were removed until every possible bit of archeological information had been extracted from them and not until they had been drawn by the architects and photographed.

Progress Seems Slow

While progress in this way is often slow to the observer, we as responsible archeologists hope to have destroyed no evidence without first having obtained every bit of archeological information which the remains of the mound still contained when our work began.

A word should be said about the objects unearthed in the process of excavations. The place of origin of each, whether the object is large or small, is carefully recorded in the field. Large objects such as mortars, door sockets, or roof rollers receive a

label; small objects are put in envelopes on which all pertinent information is written. A staff member, in our case Mrs. Marion Beegle, used her full time for the drawing and registering of all these objects in an accession book and on cards.

She had to wash and clean the hundreds of pieces of glass, bone, ivory, or metal, to treat chemically the bronze and copper objects, coins, needles, spoons, bracelets, rings, et cetera, in order to free them from the overlying layer of dirt or oxide, and to repair broken pieces as far as possible.

ments were lifted from their bed of cement by an intricate process. First, some sheets of cloth were glued on their surface. Each mosaic was divided into smaller, numbered segments and cut up with a knife. Then by means of a chisel the segments were lifted from their underlying layer of ancient cement. After each segment had been cleaned at the back side, the mosaic was reassembled face down on a flat piece of wood and put in a wooden frame. A grid of staff iron was put into the frame and cement poured over it.

In this way a mosaic floor or frag-



Two diggers are gluing cloth onto the multicolored floor fragment from an early Christian church at Heshbon in preparation for removing it from its ancient bed.

After the completion of our season of excavations, a representative of the government's Department of Antiquities made a division of finds. He selected a representative group of objects, in most cases the best pieces, for the national collection of antiquities housed in the Archeological Museum in Amman. The remainder of all objects, in our case about 60 per cent of the total, was allotted to the expedition. The objects given to Andrews University, for which an export permit was obtained in Jordan, will be added to the growing collection of archeological items that form the nucleus of a Biblical museum.

The Preservation of Mosaics

Our expedition also discovered three fragments of multicolored mosaic floors in a church and in one of its side rooms. The two large frag-

ments can be transported and permanently preserved. The two large fragments of mosaics found in the apse and the central aisle of the Heshbon church were lifted and restored in the way discussed and then transported to the regional museum at Madaba, six miles south of Heshbon, where there are many other colorful mosaics, for Madaba is a city rich in such relics of early Christian art (a sixth-century mosaic map of Palestine, including Jerusalem, the earliest known map of the Holy Land, is in a church at Madaba. See the *SDA Bible Dictionary*, p. 699, Fig. 323).

In our next article we shall describe our work in the four areas in which we carried out excavations and discuss the historical data we believe we have obtained from the first season of excavations at Heshbon. ♦♦
(Concluded next week)