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AN ANTHROPOLOGICAL PRELIMINARY NOTE ON
THE FIRST SEASON AT TELL HESHBÂN

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Archaeological expeditions working in Palestine have seldom had the benefit of the presence of a trained anthropologist. Except for excavations carried out at prehistoric sites or in tomb areas, physical anthropologists (not to speak of cultural anthropologists) have rarely been staff members of any archaeological expedition in Palestine. Bone material from occupational levels has therefore seldom been subjected to systematic and professional study. The only bones saved, besides those coming from burials, were worked bones, such as pieces of furniture inlay, spatulas, needles and other objects made of bone; knuckle bones (astragali) presumably used at all times as game pieces, and rarities such as the plastered skulls found at Jericho. But the great bulk of bone material, being the discarded remains of food consumed by the ancients, has not attracted many archaeologists and has usually been discarded.

Yet the study of the bone material can be rewarding. Sub-sistence patterns provide valuable information about a population and the fauna and flora that surround it. Such patterns can be developed from an analysis of bone material recovered from field excavations. Further analysis can provide clues as to sizes of populations in a given area and can reveal changes in food habits or in domestic animals as well as the availability and variety of wild animals. Information can also possibly be obtained on additional cultural patterns such as butchering techniques and cultic practices.

It was for this reason that the Heshbon expedition, beginning with the planning stages, provided for the inclusion of an anthropologist so that any organic matter found,

especially the bone material which could be expected to turn up in great quantities, would receive professional attention. The author of this preliminary note served on the staff of the first Heshbon expedition in this capacity. The present note serves to acquaint the reader with the system of recovery, registry, and identification, and give him preliminary information on some of the more unusual finds of bone material. A final report can only be given after further studies in this country of all the recovered and kept bone material—more than 300 pounds.

Identification System. It was decided, as far as possible, to make the identification of bone material uniform with that used for the pottery and object registry. Therefore an individual bone specimen could read H68, A3-89-6, BF 537, meaning that it comes from the 1968 season of Heshbon, originates from Area A, Square 3, was associated with pottery that made up Pail 89, and was found in Locus 6. The number 537 is the individual bone registry number.

A registry book was kept and numbers assigned from 1 to 10,655. Any of the registration numbers would be preceded by the capital letters BF (= Bone Fragment). In addition to the four Area designations A, B, C and D a fifth one, "Miscellaneous," was used for items of special interest that were found on the surface of the *tell* in sectors other than those being excavated, for items brought to us by workmen where the exact location was not known, and for those few specimens which accidentally had lost their identification.

Items registered fell into two categories: (1) those that seemed to be of special interest because of shape, size, color, or rarity; and (2) those found in a locus of special interest such as a sealed locus, *viz.*, one that could definitely be identified with a chronological period. In addition, it was decided to register all bone fragments from Area B because this deep probe was made to establish the stratigraphic sequences for the entire *tell*.

Field Techniques. All Square supervisors were given a paper bag for each pottery pail. Each bag carried the same identification as the tag of the pottery pail. All bones or bone fragments were placed in the bag as they were uncovered. Some workmen were quite skillful in removing fragile bone fragments from the soil and getting them into the bag intact. When articulated skeletal material came to light, the anthropologist was called. He completed the excavating with the assistance of skilled nationals, prepared the skeletal pieces for official photographing *in situ*, and then removed them for laboratory treatment, identification and registry.

Laboratory Techniques. The bone material was taken in the bags, still in the pottery pails, to the headquarters. There the bags were separated from the pails and placed in a special staging area where they accumulated until they could be cleaned. For cleaning, the bone material of one bag at a time was put into a basin containing room-temperature water. After a minimum soaking the soil was removed with a soft hand-brush, and the bones were rinsed and dried on mats in the sun. When the bones were thoroughly dry, they were placed back in their original bags and transferred to tables in the laboratory for sorting, marking and identification. The anthropologist then discarded all unidentifiable fragments, and of disarticulated material all ribs and long bone fragments that were not part of proximal and distal ends. All identifiable fragments were kept, as well as all bones and fragments found in articulation. On all bones to be preserved, a strip of white lacquer, 1 X 5 cm., was painted, and after that had dried, the bone received its identification number in India ink, plus the registration number as soon as a specific bone was entered into the registry book. Some bones required a clear acetate top-cover over the India ink lettering, but in most cases this was not necessary since the ink adhered well to the white lacquer background.

After this procedure the Bone File card was filled out. This is a 14 X 19½ cm. card designed for the Heshbon expedition.

The information which was on the bone bag was transferred to the card and the bag was discarded. Also the total number of pieces retained was recorded on the card. It would have been ideal if at this point the type for each bone (humerus, femur, etc.) could have been recorded along with the common name of the animal from which the bones came and the Latin species identification. This was impossible because of time and personnel limitations.

With the statistics entered upon the card, bones were then regrouped for further analysis. All similar skeletal parts were put together, *viz.*, all humeri in one container, all femora in another, etc. This facilitated species identification. When this information became available it was placed on the Bone File card along with the animal's common name, and the card was indexed and was then ready to supply the necessary data for final interpretation.

Because of an emergency at the beginning of the season which required the anthropologist to assist with surveying work during the first two weeks, so much bone material accumulated during that time that he was never able to catch up with the backlog during the remaining weeks of excavations. In fact, the quantity of bone material was so large that it would have been impossible in any event to bring the work to the desired level of processing by the time the excavation closed down. The material of the last several days could not be processed at all for lack of time. It was only cleaned and shipped in marked bags to America, where the work of registry and identification must be carried out.

Statistics. The following statistics are taken from the Bone File cards and do not include the unrecorded material found in the last three days of excavations. The result is that the final total of collected bone material will differ from the numbers given in this preliminary report. A total of 6,682 bones and bone fragments were recorded. From Area A, 636 pieces, about 9½%, were recovered. Area B provided 1,167 pieces, or almost 17½% of the total. Area C accounted for the

majority of recovered material with 3,813 pieces or somewhat over 57%. From Area D came 1,066 items or a little under 16%. The minimum number of bones and/or bone fragments found in any one locus was one, while the maximum for one locus amounted to 1,108. However, in most cases bone fragments would not run more than 30 to 40 pieces in any given locus.

Human Skeletal Material. A small amount of human bone material was found. In a pit (D. 3:14) in Area D three skull fragments came to light which probably came from two male individuals. The ceramic evidence indicated a Roman context. The lack of articulation and the scattered condition of both bone fragments and sherds indicated that they came probably from a fill, and that the fragments had accidentally been brought in from another area in Roman times.

Nearby, in the same pit, a nearly complete skeleton was recovered. The body did not seem to have been buried in any formal way. It lay on its back, extended and legs crossed. However, the lower legs had been severed just above the knees and were missing. It is possible that the lower leg portions had been broken off and removed when, at a date following interment, an intrusive pit was dug there. The right arm was extended and completely intact. The left arm was missing and the left scapula was wedged between two rocks, about 30 cm. higher, *i.e.*, closer to the surface, above the rib cage.

The strangest feature of this discovery was that the third, fourth, and fifth cervical vertebrae lay in articulation on top of a rock on the same level with the left scapula and perpendicular to the direction of the vertebral column. The rib cage was in perfect orientation and all vertebrae were in place right up to the atlas articulation with the skull, except for the exact amount of space needed for the three missing cervicals. The skull was complete and in excellent condition except for the teeth, which were all missing in the maxilla. The mandible, however, was completely fragmented and only the right third

including the ramus with two teeth was recovered. Of greatest interest was a tumor found in the left rib cage. It consisted of three rounded calcified pieces, the largest, about the size of a grapefruit, being fractured and full of dirt. The other two pieces were much smaller and intact. The exteriors had a bone-like texture and color, but were very thin, and they were perforated all over. The inside of the largest piece showed substantial deposits of a calcium-like substance. The pathological examination of this material is not yet completed, for which reason nothing more can be said at this time.

The soil connected with the skeleton contained many small body sherds of the Roman period. Nothing was found with the skeleton to indicate clothing or any artifacts. A tentative field identification would indicate that the sex was probably female, that the overall body height was about 1.60 m., age about 40 years, and skull characteristics pointed to Egypt as country of origin. Was a female slave killed, or did she die in some other violent manner during the Roman period? Further studies after the arrival of the skeleton in this country (it is on loan by the department of Antiquities of Jordan) may modify some of the conclusions presented in this provisional report.

Animal Bones. The most interesting animal skeleton was a completely articulated skeleton of a large canine minus the skull; 214 pieces of bone were recovered from it. The head had been decapitated and was not found.¹ One of its hind legs was burned to the bone (Plate XXI:A). It came from Area B, from a Hellenistic context (below Locus B. 1:24). With the greatest reservation the suggestion is made that possibly some cultic practice was involved in the killing and disposal of this animal.

¹ In earlier, preliminary reports on the Hesbon expedition, such as in the article that appeared in the *BA*, XXXII (1969), 26-41, the animal was designated as a feline. When the skeleton finally reached America in May 1969, making a comparative analysis possible, it appeared that the animal in question belongs to the canine family. The lack of the skull and of any comparative material in Amman was responsible for the earlier, erroneous designation.

The great majority of the bone collection, however, consists of animal bones representing food consumed by the population which resided at the site. Both wild animals and domestic animals are represented, and it is hoped that future studies of the available material will enable us to obtain patterns of subsistence of the people during successive occupations of ancient Heshbon. They may also aid us in making estimates with regard to the number of people who occupied the ancient site at a given time; in this way our knowledge of past political situations may also be increased.

For example, in Area A, in levels of the Christian church, samples of *sws* (swine) began to appear. Prior to this, much *capra* (goat) and *ovis* (sheep) was in evidence. The exact strata where swine bones appear will be strong evidence for pagan or Christian occupation. Its termination may well indicate the beginning of Muslim occupation. This can be interesting cross-check information in connection with the evidence provided by the pottery and other materials.

In all Areas fish bones were in evidence; several long tapering pieces that have a saw-tooth-like top edge have been identified as the pectoral fins of a large carp-type fish. These may be related to the greenish-colored bony structures that look like what the Arabs call "half beak" or "Balfida," a large market fish imported from the Red Sea area.

Several spurs were found and were no doubt related to order *gallinae*. It is not possible to ascertain whether they come from turkey, pheasant or even *gallus domesticus*, the common chicken. Since the chicken originated from the jungle fowl of Asia its migration through trade to the Heshbon area would be expected.

A small mandible from Area C has tentatively been identified as *mustelidae*, but whether martin, otter or some other we do not yet know.

The mandible of a large long-nosed dog was found in Area D. Area B produced a fragmented upper maxilla of a dog, but this fragment indicated a very short nose. A main-

dible coming, in all probability, from a fox was found in the same Area.

Much more remains to be done not only in identifying the material but also in recognizing trends. If we see a high percentage of wild animal bones in a given stratum, it may indicate that agriculture and the keeping of domestic animals were temporarily halted because of war or famine. We also want to look in our further studies for changes in the overall estimated weight of domestic animals down through successive periods as well as possible trends of anatomical changes.