THE FLOTATION REMAINS
A Preliminary Report

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The introduction of the "flotation method" as a procedure for isolating and collecting microscopic and larger organic and inorganic remains from randomly selected archaeological deposits at Tell Ḥesbân has enabled us to identify more precisely the contents of the soil unearthed routinely during our excavations. This report will describe briefly the procedure and discuss some of the findings to date.

The flotation apparatus employed was devised by Larry G. Herr. It was a replica of one he had seen developed at Tell Hesi by Professor Robert B. Stewart. The apparatus was constructed from an old metal barrel (measuring approximately 3 feet long by 2 feet wide) which had had one of its ends removed so that it could be used as a tank. The water with which the tank was routinely filled was purchased locally as it had to be "clean"; it came from the new pipeline which now supplies the village with fresh water.

The sieve which was used for collecting the flotation samples, which would surface after a bucket of soil had been dumped into the tank, consisted of a pan (1 foot across by 3 inches high) with a perforated bottom. The perforation allowed the water to escape through the tiny holes leaving the flotation sample as a foamy, slimy substance in the base of the pan.

The floated substance was subsequently removed from the pan and placed on a plastic sheet next to a slip of paper containing the information about its archaeological context. Finally, when the substance had dried and become powder-like, it was

placed in a plastic bag and stored until it was reopened in the laboratory.

Analysis of the flotation samples from Ḥesbân revealed both ancient and modern (contaminants) remains.[1] There were specimens of seeds, insect pupa cases, snails, ash, cow and goat dung, and wood charcoal. This report, however, deals primarily with the botanical remains since they are in the majority and therefore yield the most information at this time.

The ancient remains represent six cultigens: one type of barley, two types of wheat, and three pulses (vetch, broadbean, and lentil). Olive, apricot, date, grape, and a possible specimen of

Table 5. Ancient Plant Remains Identified from Ḥesbân Flotation Samples[2]

COMMON NAME	QUANTITY	SPECIFIC NAME
barley[3]	42	*Hordeum* sp.
six rowed barley	51	*Hordeum vulgare*
wheat[3]	9	*Triticum* sp.
common wheat	68	*Triticum aestivum*
emmer wheat	13	*Triticum dicoccum*
pulses		
bitter vetch	22	*Ervum ervilia*
broad bean	3	*Vicia faba*
lentil	9	*Lens culinaris*
wild grass		
olive	122	*Olea europa*
apricot	1	*Prunus armenica*
date	3	*Phoenix dactylifera*
grape	13 (5 whole)	*Vitis vinifera*
cornellian cherry (?)	1	*Cornus mas*

[1] The analysis and identification of the flotation remains was done by Professor Robert B. Stewart at Sam Houston State University in Huntsville, Texas.

[2] Space does not permit a listing of these specimens according to area, square, and locus. Interested readers can obtain this information by writing to the authors c/o Lawrence T. Geraty at Andrews University, Berrien Springs, Michigan 49104.

[3] The condition of the material made positive specific identification of some of these samples impossible. However, these samples are most likely of the same species as those which are positively identified.

cornellian cherry are indicated. These are kinds of fruit which are still exploited today.

The remains of cultivated plants may be interpreted as items of diet either for man or domesticated animals. We cannot necessarily assume, however, that these remains represent the complete vegetable diet of the earlier inhabitants of Ḥesbân. There are many wild plants found in the area today which have potential for and are occasionally used for food sources: blackberry, thistle, eryngo, and mint. Assuming that the characteristic natural vegetation of the area has not changed appreciably over the past 4,000 years, we may speculate that these plants were available and perhaps exploited to some extent as diet supplements.

In order to interpret better the findings from the flotation samples, one must place them in their contextual framework. Does the concentration of a single item in an area indicate a specific type of storage area? Is there ceramic and/or architectural evidence to support such a conclusion? Does the presence of many different probable food items in one area indicate a midden, a kitchen floor, or perhaps a living or eating area? For example, Locus A.5:81 contained evidence of common wheat (6), barley (22), olive (23), lentil (6), bitter vetch (19), broadbean (2), and grass, in quantities that are high in proportion to the overall findings.

Flotation information must be combined with soil analysis and floral and faunal analysis as well as contextual evidence of the material culture in order to be more accurately interpreted. An efficient means for examining these data and all new data must be devised. Storage and tabulation by computers would be an excellent means of handling the complex problem and would make the data accessible for many different types of problems and approaches.