Aegyptus et Pannonia VII.

Acta Symposii anno 2021

BUDAPEST

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Editor: Hedvig Győry

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Contents

Plants and Health Conference 2021, and the Proceedings

Dr. Hedvig Győry PhD

HEFT AEC president

In 2021, the HEFS Ancient Egyptian Committee, in partnership with the HNM Semmelweis Museum of Medical History, organised an international conference entitled "*Plants and Health from Ancient Egypt to the Present Day*". The three-day conference focused on topics related to the application of plant material in medicine, but also included other topics connected to the use of plants in any practical or theoretical area of human life. We planned four sections with the following keywords:

History of healing and nutrition from the time of ancient Egypt to the present day
Which plants were used for healing, how, where, by whom and when, which plants were used to maintain health, or prevent disease in different parts of the world; what did people eat in everyday life, what were the festive foods/drinks, what were the expected results; and what are the related issues raised by ethnographic research.

Medicines and pharmaceutical science in historical periods in the light of sources
Who, how and why recorded knowledge of medicine in each period; what principles were used to treat patients or maintain health; what were/are the popular explanations of these issues or principles.

Herbal medicine and contemporary medicine
According to our current knowledge, what can we assess about the active ingredients of a given plant, the mechanism of action and its intensity, and what biochemical relationships can be discerned from their interactions.

Religious views and beliefs about plants
By whom, where, when, and what special magical properties have been attributed to plants, what is the role of plants in the social context, how is it explained, and how have plants been incorporated into everyday life/celebrations or healing practices

The conference was held between 14 and 16 October 2021 with 40 presentations. Due to the COVID pandemic, circumstances did not allow for a face-to-face meeting, so the event was entirely online. However, the possibilities offered by the Internet also allowed for smaller group discussions. The topics presented included the appearance and use of plants in different times and places, from ancient Egypt to contemporary Europe. They were divided into thematic and language (English and Hungarian) sessions, led by recognised scholars. After the lectures, it was possible to discuss the issues raised in front of the general public, and topics of narrower interest could be further discussed in separate rooms created within the Zoom system. Valuable contacts were made and new research ideas were generated. A small exhibition was also organised by the HNM Semmelweis Museum of Medical History for the occasion, as we had hoped until the last minute that the pandemic situation would change. However, it was only available to personal visitors.

During the conference it was possible to learn about new methods, we exchanged ideas and heard about research results and ongoing projects. A significant part of the presentations were given in English, the other part in Hungarian, but the papers included in the proceedings are all in English. The first part of the proceedings, as a result of the presentations and discussions, is published in this volume; the other part can be read in the next volume of the Aegyptus et Pannonia series.

Although not all the presentations are published, most of the aspects we covered are included in the volumes. The programme covered a wider range of topics: We were able to learn about plant finds from recent Egyptian archaeological excavations, the identification and use of plants in textual sources, religious connotations, and even the possibility of reconstructing perfumes. We could also look at the trade in plants between the Hittite Empire and Egypt, and learn which plants were used by the Copts in the Middle Ages. The latest research on Roman herbaria was discussed, and hitherto unknown ancient Egyptian texts were presented. Other presentations were devoted to the reproduction of some medicines based on ancient recipes. In one of the lectures we saw on video the process of preparation and examination of an ancient Egyptian medicine. Several papers dealt with temporal and spatial changes in the everyday and liturgical use and interpretation of a given plant, e.g. pomegranate in Greece. In India, Soma. In Hungary, thorn apple. In Estonia, pelargonium. In Finland and the Arctic, roseroot. And in the Arabian desert of Egypt, the apple of Sodom. The role of plants in religious ceremonies and concepts was also discussed, as well as the variety and significance of the scent they produce.

The lectures presented a wide range of the application of herbs in ancient and medieval medical methodology, with the help of Egyptian, Greek, Anatolian, and Hungarian herbariums. The conference participants were the first to hear that many ancient Egyptian medicines can still be found in the medieval Welsh medicinal knowledge. We also learned that a significant part of Dioscorides' usage of herbs could also be observed in Anatolian folk medicine. Lectures were given on the wide range of magical effects attributed to plants, spanning from antiquity to the Renaissance, in terms of iatromagic, iatromathematics, and iatromythology.

In separate sections, the participants were introduced to Hungarian ethnobotanical research, where, in addition to the methods of the way of collecting ethnobotanical data throughout Transylvania, the lecturers presented both the botanical aspects and the therapeutic potential of the plants included in the various Hungarian medicinal herbariums and pharmacopeias. In addition to the knowledge of plants preserved in the Hungarian witch-trial documents of the 15th to 19th centuries, the possibilities of historical and folk use against various diseases – such as tuberculosis and cholera – were also presented, and in connection with diabetes and surgery we also visited India and China. We got again an idea of how wound care has changed over the centuries, how plants have influenced the toolkit of surgeons, and which plants are still used in modern wound management. In connection with the Székesfehérvár Pharmacy Museum, an overview of the museum's extensive educational activities was presented in addition to its history. We have got acquanted also with the the most important medical tariff book of Hungary in the 18th century and the drawer labels of five apothecary furniture of the same period.

The approach to the flora of ancient Egypt is also diverse, and the study of the Ancient Near Eastern relations encompasses several scientific fields, such as Assyriology, Hittiteology and Biblical studies. The classical Greco-Roman world is also included in the next volume to facilitate comparison. In addition to history, interdisciplinarity also extends to other branches of the humanities, such as – among others – archaeology, history, linguistics, ethnography, philology, the history of religion and magic or iatromathematics.

In recent decades, the development of the sciences has moved in the direction of interdisciplinary cooperation, not only between related sciences, but also between seemingly distant branches of science. In addition to textual and material sources, the results and methods of the natural sciences are of fundamental importance for a more precise understanding of the past. The role of analyses and investigation of the various materials is thus becoming increasingly important, complementing traditional descriptive studies. As we also wanted to play a role in this process, several areas of natural science, such as archaeobotany, phytogenetics, types of data investigation and plant breeding, or various facets of medicine and medical history are also represented in the proceedings.

In this volume, we publish 11 studies that approach the world of plants from different perspectives within the broad framework of the conference. The focus is on ancient Egypt, but the articles also look at other areas. In addition to the data found in the articles and the results obtained, the methodological and theoretical approaches raise many new ideas, give exciting results and draw attention to various possibilities. For example, the multifaceted role of medicinal plants in the museum world or their application from the perspective of medical history and ethnomedicine.

With this volume, we hope to arouse interest in the unique world of the past, especially Egypt, to bring closer the world of nature and its possible effects on human life, and to encourage the birth of further results that will make the ancient Egyptian world better known and our own world better understood.

MAGYAR–EGYIPTOMI BARÁTI TÁRSASÁG
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Preliminary Archaeobotanical Report on Plant Remains from South Abydos Settlement

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Abstract

Archaeobotany studies plant remains from archaeological sites to understand past human diet, food gathering and cultivation, and environmental change. The term encompasses macro- and micro-remains.

This research is about studying archaeological plants from a settlement at South Abydos, dated to Naqada III A2 – Naqada III B / C periods. The actual site is situated around 300 m to the south-west of the Seti I temple and 1250 m to the south-east of the royal tombs in Umm-el-Qaab, located about 75 m to the local north of the Early Dynastic cemetery at South Abydos, on the western edge of the El-Arab Village. It covers an area of around 150 m x 200 m.

During fieldwork at the settlement, samples were taken for archaeobotanical analyses. All samples were processed using the barrel flotation method and then air-dried. On the first view, the samples recovered from the collected soil included cereals, small weeds and fruits. We just started to study plant remains from the site and I will focus in this paper on the methods that I used in this stage. Thus, I will focus in this paper on the methods appropriate for the first steps: how we obtain the plant remains, why this method is suitable for extracting the maximum material available to us.

Keywords: archaeobotany, Abydos, settlement, flotation, Upper Egypt

Introduction

Archaeobotany is a discipline of recovering, identifying and interpreting plant remains from archaeological sites, with the aim of understanding past human diets, food gathering and cultivation, and environmental changes. The term encompasses both macro-remains and micro-remains.[1] The formal study of plant remains from archaeological sites goes back to at least 1826

1 Nesbitt 2006.

when Carl Sigismund Kunth published an analysis of cereals, fruits, and seeds from dry Egyptian tombs.[2] The study of carbonized remains is attested from 1901, when Wiliam Corless Mills in a short paper first identified charred papaw seeds, chestnut, butternut, black nut and others in Ohio, US. [3]

The method of retrieving the material is very important, as it influences the organic preservation in both quantity and quality. The water separation method (called flotation) we used seems to have been applied first by Franz Unger, who studied the seeds of a mud brick for his work on ancient Egyptian flora.[4] The method became well known only a century later, however, when Stuart Struever published it with scientific methodology.[5] It has been elaborated since then.[6]

In identification and interpretation, beside the actual material, we also have to consider its formation processes, that is the natural, cultural and analytical transformations of the plants during their use and afterwards, including the way they are handled by the specialists.[7] Thus, the location and method of collecting and accessing our material, as an important part of the investigation of the vegetal remains, will be discussed in this paper.

Abydos was an important centre throughout the prehistoric period of ancient Egypt.[8] Already by the Naqada I period, its chiefs controlled the whole Thinis-Abydos region, and were among the most powerful rulers in Upper Egypt. They maintained this position of power and even continuously increased it through battles, trade, and economic measures in the subsequent periods. As a result of their activities, by the beginning of the Naqada III period, this territory had grown into one of the three great powers, then flourishing, i.e. besides Naqada and Hierakonpolis, and this process led to the foundation of the pharaonic state. The rulers built their tombs in the U cemetery (Umm-el-Qaab).[9]

There are only a few prehistoric settlements known in this area; one of them is studied here. It dates mainly to the late prehistoric period, thus when the pharaonic state formation started: the Naqada III A2 – Naqada III B / C periods.[10] According to our current knowledge, this was the so-called

2 Miksicek 1987.

3 Mills 1901.

4 Unger 1860.

5 Struever 1968.

6 See e.g. Peershall 2015.

7 Miksicek 1987.

8 Stevenson 2016.

9 Wilkinson 2000; Wilkinson 1996; Hartung 2014/2015.

10 Specifically for this period, see Stevenson 2016, 443-449.

protodynastic and Dynasty 00 period, which was followed by the Dynasty 0,[11] which lead to the pharaonic era.

The settlement is excavated and studied in the frame of the South Abydos Excavation Early Dynastic Cemetery and Settlement (SAEEDCS) project, directed by Yasser Mahmoud Hussein. He started the Project in the Southern part of Abydos in 2008, by investigating the area near the village, and found a cemetery dated to the Naqada II – Naqada III periods, and continued to excavate there, wondering where those buried people lived. After a few years, in 2015, he indeed managed to find the evidence of a settlement adjacent to it, dated also to the same Naqada periods (figure 1). The work started with test squares, chosen based on field-walking. Scientific and systematic excavations were then continued, which also made it possible to keep some sediment samples for future analysis.

Figure 1. Location of the SAEEDCS Project

When I started on working with these samples, I had several questions to answer, such as the following ones:

- What kind of plants can we find in this Naqada III settlement, and did they stay the same during all the time from late Prehistoric to the Early Dynastic period?

11 For Dynasty 00 see e.g. Raffaele 2002, for Dynasty 0 see Raffaele 2003.

- How were these plants used, i.e. beside food and the household activities, were they applied in professional works as e.g. in building, textiles production, medicine, apparel, basketry, or any other craft?
- As traces of fire could be discovered, I wondered what kinds of fuel were used in this period?
- Do plants say anything about the social status of people living in this settlement, and if so, did they belong to the elite or to the common folk?
- Can the plant remains reveal the flora the people of this time lived in? How did they use it, i.e. was their life based mainly on agriculture or gathering? If both, did their ratio change, and how?
- Parallel to objects, was distance trade present also for plants and plant-based ware?

Of course, even the possibility to ask these questions depends on the remains, which I had to access first. As they were included in the sediment samples, before giving any answer, the first step was to see what material I could retrieve, and first of all, how I could do it.

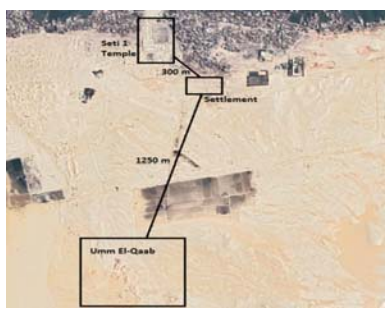

Figure 2. Location of the SAEEDCS Project

Settlement description and locations

The Naqada III settlement is situated about 300 m to the South-West of the Seti I temple, about 1250 m to the South-East of the royal tombs at Umm-el-Qaab (Figure 1-2), and is located about 75 m to the local north of the Early Dynastic cemetery at South Abydos (Figure 3).[12] It covers an area around 150 m x 200 m; in the middle of which was located the area providing the sediments. This was divided into four 5x5 m squares (8C1-8D2-8C2-8D1), which were 0.5 m in depth (Figure 3).

In the excavated field, we found different types of pottery, approximately 75% of which can be classified as various types of bread moulds. Among the hundreds of the other diagnostic sherds analysed thus far, bowls with everted rims were especially frequent, but they included groups such as small bowls,

12 Hussein 2017.

bag-shaped jars with a rounded or slightly pointed bottom, cylindrical marl jars with net painted decoration – also some with the residual line –, or cups. There is also one piece decorated with incised dots, a design possibly resulting from foreign contacts. Intensive workshop activity is attested by any pre-firing potmarks. Concerning the other types of objects, shell and stone beads, and other lithic artifacts are significant – based on a preliminary analysis sickle-blades are the most common ones, pointing to intensive crop cultivation.

Figure 3. Settlement location

Stratigraphic analysis of the primary archive generated during the fieldwork revealed four phases of the settlement (moreover, three of them were divided into sub-phases). The phases are numbered from the earliest to the latest.

Figure 4. The excavation area

Phase I: This phase is represented by series of human and animal activities.
Sub-phase Ia: Fence (or enclosure) and Pot Emplacement Construction.
Sub-phase Ib: Occupation (Animals & Firing Activity).
Sub-phase Ic: Abandonment: Fence Collapse.
Phase II: This phase is represented by animal activities.
Sub-phase IIa: Cut for the architectural construction (fence or enclosure), which seems similar to livestock pens in modern Egypt.
Sub-phase IIb: Abandonment of the enclosure.
Phase III This phase is represented by sub-phases of animals and firing activities.
Sub-phase IIIa: Firing Activity.
Sub-phase IIIb: Animal Activity.
Phase IV: Modern Activity

The excavations revealed both rectangular Mud Enclosures with Mud ground structure (Koch) near to each other, and a Circular Mud Structure in addition to a pot emplacement construction with the silty sand mixed with animal dung deposit and the traces of firing activity nearby. All these features represented the presence and physical activity of human beings or animals in the square homes. Their processing, however, is still a work in progress.[13]

The type of rectangular reed fencing enclosure is well known during this time. During the excavations at Hierakonpolis, too, a similar construction was found: a rectangular pit was dug there and then reed walls were plastered with a mixture of mud, and mudbrick debris, which are standard features of modern Upper Egyptian rural architecture.[14] I think the construction that included the two squares with the vegetal material under research, is similar to that which was found in Hierakonpolis (Figure 5).

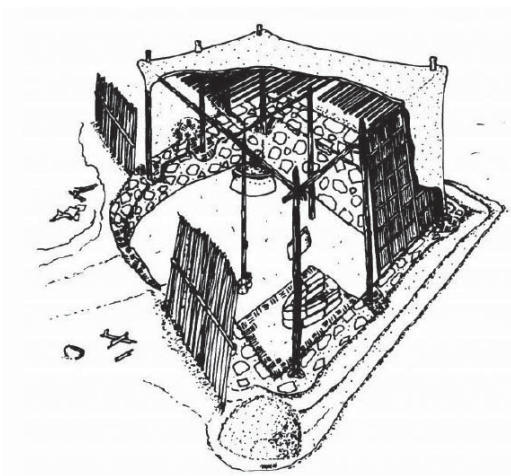

FIgure 5. Reconstruction of structure showing constructional details and interior faces in Hierakonpolis (Hoffman 1980, 131, fig. 11.)

We registered 36 find spots from two squares (8C1 and 8D2) in 2015, which indicate the high level of activity in the mud building in different internal

13 AMT, AHM, 2015.

14 For more information see: Friedman et alii 2002; Hoffman 1980.

periods. Thus, the plant remains are the remnants eventually connected to bread making, considering the high frequency of bread moulds, or some other household activities, the diversity of which can be deduced by the variety of vessel types. We have documented and sampled the soil, the layer of the artefacts found there and other materials which were in these contexts, to get the most information possible about the people who lived in that place, and to learn what they ate and how they worked and organized their life and the society. The phases we registered here are specific phases valid just for this location. We have not yet tied them into the overall site-wide phasing system, since the work in the settlement is still going on,[15] thus the internal phases will be correlated to the local ones by later research.

Method

In the present article, I will focus on the main points of the method applied to retrieve the remains from the sediment samples. For convenience of presentation, I will divide these into the following sub-headings:

a) Sampling
b) Flotation

The following steps will include c) the analysis, the data processing and interpretation

a) Sampling and its methodology

During fieldwork between 2015 and 2018 at the settlement, samples were taken for archaeobotanical analyses from the four squares (8C1-8D2-8C2-8D1). The methodology of the Single Context recording system was applied on the site during all excavations[16] to record as much of the information as possible. It is a well-proven, detailed system that several archaeological missions follow at different sites across Egypt, e.g., Ancient Egypt Research Associates (AERA), and the American Research Center in Egypt (ARCE). This not only enables the accurate recording of data, but also facilitates comparison with other finds of the period.

The excavated area was cleaned by hand; and the contexts that were observed were fully excavated, the whole context drawn, and recorded on pro-forma context record sheets following the guidelines and instructions set down by the Single Context Recording System of the Museum of London Archaeological Services (MoLAS), and edited and enhanced first by the Giza Plateau Mapping Project (GPMP) and later by Tassie and Owens to fit into the Egyptian landscape.[17]

15 Hussein Forthcoming
16 Hussein Forthcoming
17 Hussein Forthcoming

The excavated area consists of two 5x5 m squares (8C1-8D2), 0.5 m in depth, which are located in the middle of the Naqada III settlement. 36 contexts were recorded from these two squares, giving some indication of the high level of activity.

b) method of Flotation and processing

The ensemble ot the archaeological plant remains collected at a site is a small sample of the farming system from the settlement. The type of plant remains depends on species that respond best to fire events; for example after a fire event grains and legumes can be found best preserved, although charred. In contrast, the leaves of plants, for example, turn to ash when burned, and are unrecognizable. I expect that analysis of the samples will enable us to determine the types of seeds and grains consumed in the settlement.

Flotation

Flotation is one of the archaeological sampling techniques used at the site to verify ancient plant remains. The flotation picks up small finds including grains and seeds that are usually missed during archaeological excavations.[18] We noticed that, when the barrel (Figure 6) is filled with water the dirt sinks to the bottom, and the seeds float in the water and head towards the filter.
The materials I used for flotation were:

- One bucket marked with litre lines, for measuring
- Wooden hoop sift
- White cotton fabric squares
- Binder clips or clothes pins of different sizes
- Small tea strainer (with as fine a mesh as possible)
- Scissors
- A Sharpie pen
- Containers or bags for the final samples

Collecting samples by flotation is useful not only to get out the sample material from the sediment sample but also to measure it. I process all samples using the barrel/tank flotation method. I use the one-litre bottle of water that I keep dumping into the bucket and marking the exterior with lines. I record its context and sequential flotation number in the

Figure 6. The flotation equipment used during the work

18 Struever 1968.

flotation log before I begin. The sample is then placed in the flotation tank. The tank contains a metal mesh in the middle of the tank and part of the cloth is used as fine mesh. The tank is filled with water to dissolve the soil in the sample. This can take 30 minutes. Sometimes silt suspended in the water will make this a slower process. I can speed things along by raising the tank from the bottom on the opposite side of the hole from which the water comes out, because on occasion the water is not powerful enough to flush plant debris out. Alternatively, to make the process faster, I can use my hand to gently move the water in a circular motion inside the tank.

Once the soil is dissolved, water is pumped into the base of the tank. Organic remains float to the top and over the lip of the tank where they are collected in a sieve specially designed for flotation. First, I put three sieves for different plant-sizes over each other but this way was not suitable for our purpose, because I also found small plant remains in the sieve for larger material. Therefore, I decided to use just one sieve. It collected all organic material from the smallest to the largest. After drying, I sieved this organic material using three different sizes of sieves.

Drying

After the flotation process, we collected the floated samples to air-dry them by hanging them on a line (Figure 7). Thus, once I finished floating and recording a sample, I removed the white filter cloth and tied the recovered plant debris in a textile bag together with the context information and flotation number. I then hung the sample bag on the clothesline for at least 48 hours to allow the sample to dry thoroughly.

Figure 7. Samples hung to dry after the flotation processing

After drying, each sample was transferred into a small container or plastic box. Most of the collected samples are kept inside these boxes according to their size. We divided them into four groups: bigger than 1 mm, less than 1 mm, 0.50 mm, and 0.25 mm (Figure 8). All samples are now kept on-site in the work room, ready for the coming season, with data entered into an excel sheet.

Figure 8. Sieving samples after flotation and different sizes of samples

During flotation, besides the light fraction, which contains the vegetal material, there are always materials that do not float. They are called heavy fractions and are captured inside the tank, in the mesh. A heavy fraction can include gravel, small shells, small pottery sherds, and small bones. These samples (Figure 9) are also dried for processing by other specialists.

Figure 9. *One of heavy fraction samples is drying on the ground.*

c) Analysis and Interpretation

This phase is still to do, during the next season, but on first view, it can be said that samples included cereals, small weeds, and fruits.

Processing

The next step is thus to send the dry samples to the lab for processing. As archaeobotanist, I will then sieve the samples through three geological sieves separating out the different-sized grains and seeds. The samples will be further sorted according to being modern or ancient, and according to general plant species. The time required to process samples is dependent on the density of the sample. Samples that have no plant remains may take some minutes to process, whereas samples full of plant remains may take up several hours to sort.

Interpretation

This material is rich enough and will certainly answer questions about:

- Identifying plant remains from the predynastic period in the excavated settlement.
- Understanding the activities that led to the formation of these archaeobotanical assemblages.
- Better understanding the diets and lifestyles of the inhabitants of this settlement.
- Exploring past agricultural practices.
- Investigating the use of plants by people living in this period.

Conclusion

Archaeobotany is the analysis, evaluation, assessment, investigation, exploration, and examination of plant remains from archaeological sites. It helps us to identify and interpret how plant were used in the past with the help of even small remains, for example which plants they may have used for food, medicine, building activity or fuel. Thus, by gathering even the micro remains at one site, the archaeobotanical research can help us to understand how those historic or prehistoric peoples used their environment.

For the moment, the first two steps have been carried out with the utmost care. The data are documented in an excel sheet and this, together with the samples divided into four groups of size, will facilitate the appropriate investigations. In the following season, I will complete the method, and start

the detailed analysis, followed by the processing and iinterpretation of the data gained from the samples.

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Universitetets botaniske Museum.
Gothersgade 130. København K.

18/5 1949

These plants has been cultivated in Hort. Bot. in Copenhagen from seeds received from Paris in 1809. To Paris came these seeds from Egypte with the Label: „Bupleurum d'Egypte Nectoux O. S. sur Gh."
O. Hagerup.

Bupleurum d'Egypte Nectoux O. S. sur Gh. Original collection 1803

ОБРАБОТКА ДЛЯ „ФЛОРЫ СССР"
Bupleurum lancifolium Hornem.
Typus!
1949. Teste I. Linczevski

MUSEUM BOTANICUM HAUNIENSE

MUSEUM BOTANICUM HAUNIENSE

! Bupleurum lancifolium Hornem. LECTOTYPE Sven Snogerup Nov. 2000

Museum Botanicum Hauniense

Lectotype of Bupleurum lancifolium Hornem.
Susana S. Neves Jan. 2000