Aegyptus et Pannonia VI.

Acta Symposii anno 2019

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AEGYPTUS ET PANNONIA VI.

Health and Life in Ancient Egypt. Mummies in Focus

Proceedings of the Conference held 27-29th
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CONTENT

INTRODUCTION TO THE "HEALTH AND LIFE IN ANCIENT EGYPT" CONFERENCE-VOLUME

Dr. Hedvig Győry PhD

Earlier readers of Aegyptus et Pannonia will surely be surprised by this volume. It has been more than 10 years since we organised our last conference for the fifth volume, and the theme has changed completely. Therefore, as an introduction, we would like to briefly summarize the recent events and the activities we have carried out in the professional field. This is also the reason for the structural change: the conference presentations will be followed by detailed articles resulting from the work of our Society.

The Hungarian-Egyptian Friendship Society and the Ancient Egyptian Committee

The Hungarian-Egyptian Friendship Society (HEFS) has been a non-governmental organization operating since 1995, which strives to acquaint and promote Egyptian culture; scientific activities and research are essential elements among its objectives. We discuss actual and earlier Egyptian topics from historical, artistic, literary, touristic or even economic points of view in our lectures. We also organize other programs according to the demand of situations and suggestions of our members. Thus, in the recent period our programs included Egyptian days and festivals, workshops, excursions, experience reports, public meetings and quizzes, as well as literary and photo competition. We also share other news and curiosities on our website and in our radio programs. Our activities are carried out partly in collaboration with other organizations, as was the conference organized in 2019 "Health and Life in ancient Egypt. Mummies in Focus", presentations of which are published in this volume.

Particular emphasis is placed in our efforts to raise awareness of ancient Egyptian monuments, which is why an independent Committee (Ancient Egyptian Committee / AEC) has been set up to coordinate this. It plays a key role in the life of the Society and has done much work both in dissemination and research in recent years.

Part of our work is aimed at pupils who are taught ancient Egyptian knowledge through competitions in a playful way. There were also children's classes and lectures in schools and community places (often called house of culture in the Hungarian language). Here, we primarily work through manual skills to develop on visual culture. We have been writing out fine art competitions (drawing/painting, puppet, digital

storytelling) for years. In the last two years, an adult category was also launched for the competition at the public's request, and we have organized some exhibitions with the paintings in Hungary, but had already a children's drawing/painting exhibition in Cairo. The committee has published a book on several occasions, most recently with children's drawings/paintings about the ancient Egyptian myth on the Eye of the Sun, and the next such volume is processed. Our radio programs belong also to this activity; there we present various faces of ancient Egypt and report on the latest news ("On the field of the Pharaohs"), resp. we draw attention to exhibitions in Hungary ("From Exhibition to Exhibition").

In the research field, the Ancient Egyptian Committee was initially involved in the excavation and reconstruction works of the Isis Temple in Szombathely (Savaria), focusing primarily on the religious, social, lifestyle, and artistic aspects of Egyptian religious cults. In co-operation with the archaeologists of the Savaria Museum in Szombathely and the Hungarian National Museum in Budapest, it also organized five international conferences. At that presentation, national results, discussion of controversial cases, and lectures on international professional results took place. A significant part of the lectures appeared in the form of articles in the volumes of Aegyptus et Pannonia, founded by AEC, representing the diversity of relevant scientific researches.

The medico-history research group

Already in the early 1990s, we contacted the Semmelweis University II, Clinic for Internal Medicine. With the support of the then director, Professor János Fehér, we published several publications in the Orvosi Hetilap and other Hungarian medical / medico-historical periodicals. In 2003 under the auspices of the Kriterion Publishing House in Cluj-Napoca, the book "Health and Lifestyle in Ancient Egypt" was published with the assistance of a biochemical researcher at the University. Besides the articles, lectures were also given on request.

The medico-history research group in the AEC was established with such antecedents in 2010 to examine herbs of ancient Egyptian medicine that can still be used currently in today's life, in the knowledge that ancient Egyptian science has reached such a high standard that it has become an outstanding and exemplary professional skill for the surrounding peoples, and later became one of the cornerstones of modern medicine — through the mediation and further development of Greek and Roman and then Arabic medicine. A significant part of the substances used in prescriptions are of vegetal origin, so reviewing and examining their effects and the data on them may provide new uses for current pharmacology. In this field, we collaborated primarily with researchers from the Semmelweis University of Medicine, under the direction of Professor Anna Blázovics.

A few years ago, I was also invited to contribute to the work of the editorial staff of Kaleidoscope, Journal of Culture, Science and Medical History at the Semmelweis Uni-

versity. Last year a lecture was given with the staff of the University and the Hungarian Academy of Sciences on the occasion of the Science Day of the Hungarian Academy of Sciences. We thus also maintain an excellent relationship with Professor Judit Forrai, who headed the Institute of Public Health at Semmelweis University, and with the Life Sciences and History Working Committee of the Hungarian Academy of Sciences under her leadership.

Over time, we contacted the HNM Semmelweis Museum of the history of Medicine, which also houses some Egyptian medical material, and the mummy of Zoltán Arányi, whose mummification method raises questions concerning the afterlife of this practice. Documents on this topic were encrypted for the conference, published in this volume.

Initially, our goal was to present international results to Hungarian people, which is why we have given several lectures inside and outside the Society on herbs known and used in ancient Egypt, from the point of view of phytotherapy, aromatherapy, and other medico-historical topics, some of which are summarized in our Egyiptomi Füzetek (Egyptian Booklets). We aimed to make aware as many people as possible of the newly acquired pieces of knowledge; at the same time these lectures provided us opportunity for a kind of summary and systematization, for reviewing the still immature results, and for expanding the professional consultation.

After years actively pursued in-depth research on *materia medica*, we have found interesting, even currently valid discoveries in the case of figs, sycamore, Christ's thorns, or coniza. In doing so, we collaborated with the Institute of Pharmacognosy at the Semmelweis University and the Hungarian Free Radical Research Society (Magyar Szabadgyök-Kutató Társaság), also involving pharmacist students at the University, focusing on free radical researches. It has led to a significant change in attitudes and approaches. Our research has yielded results that are as valuable from a medico-historical point of view as from a medical point of view, because they may provide solutions to broaden boundaries in the field of pharmacognosy and to discover newer therapeutic indications. It has been proven that the use of the ingredients listed in ancient Egyptian recipes studied so far can be proven to be effective drugs even today. One of our articles[1] was awarded the Lajos Markusovszky Prize by the Orvosi Hetilap (Medical Weekly, May 2017). The student, we worked with, took also a 2nd place prize for her work made for the rector's competition in the frame of the Scientific Students Body (TDK).

Scientific publications were thus produced and the need for wider dissemination of the results arose again. The idea of a public meeting or dissemination conference

1 Katona, Júlia – Győry, Hedvig – Blázovics, Anna: „Azon orvosságok kezdete, melyeket a májra adnak". [The beginning of the medicaments given for the liver]. Orvosi Hetilap 157/48, 2016, 1926-1933.

was raised, where ancient Egyptian medicine could be approached from a historical, cultural, ethnographic and pharmaceutical historical point of view, while drawing attention to the diverse uses and health-preserving and improving roles of these plants. In the course of these researches, the study of the contemporary treatment of the liver came to the fore again, which is also reflected in the current volume, building on our previous results. In the course of this investigations, it was suggested that it would be worthwhile to follow the *jns.t* / anise identification more thoroughly. The results of the researches can be found in this volume, significantly expanded compared to what was presented at the conference. Another direction of research is the mineral analyses, which we recently launched with the participation of Dr. Klára Szentmihályi.

The year 2018 then gave our research team a new impetus and members. In addition to phytotherapy and pharmacognosy, there was an anthropological direction, as can be seen from our article in the volume, which is an expanded material for the 2019 conference presentation. At the same time, we have relaunched the series of *Aegyptus et Pannonia* scholarly symposia with a new direction: mummy research. That year namely, a PhD student Enikő Szvák, who has been investigating the Egyptian mummies of the Hungarian Natural History Museum, asked us to help with our expertise in ancient Egyptian culture by participating in the research of these mummies. We already made some insight into this field as we have continually monitoring the publications concerning ancient Egyptian mummies, but made some practical steps only in 1996, with the help of Ildikó Pap, the than director of the Anthropological Department, when a publication was issued for the 90th centenary of the Hungarian excavation at Gamhud, Middle Egypt. It included the human remains kept in the Hungarian Natural History Museum, taken out from the coffins published at that time.[2]

We have now embarked on a much wider range of activities, as indicated by our joining to the Nephthys Project. The new, exciting topic added new colour to the palette of our research team, and brought our earlier conference plan to the forefront. It was a natural consequence of organizing this conference together with the Hungarian Museum of Natural History. Still, since there are also ancient Egyptian monuments in the Hungarian National Museum's Semmelweis Museum of Medical History in Budapest, we wanted to draw attention to them as well. The fact that this conference remained not just a plan is due to the active participation of the two partner-institutions, and also to the National Cultural Fund (NKA), which not only made possible to organize the conference, but also contributed to the publication of this volume. We received further help from Ibisz Bt.

2 Győry, Hedvig, Az első magyar ásatás Egyiptomban, 1907. Válogatás a gamhudi ásatás anyagából, 1997. [The first Hungarian Excavation in Egypt, 1907. Selection from the material of the Gamhud excavation. 1997]. Budapest 1998.

The Nephthys Project

Enikő Szvák

The Nepthhys Project was launched in the fall of 2018 as part of a PhD dissertation. The aim of the research is a comprehensive series of studies on Egyptian human and animal mummies and mummy remains kept in Hungary. A particularly important aspect is to implement a multidisciplinary investigations that involves the least invasive procedures possible.

The research began with the biological anthropological reconstruction of the Egyptian mummy collection preserved in the Anthropological Department of the Hungarian Museum of Natural History. Based on the preliminary results, the investigation of the pathologically most promising pieces continued with industrial CT examination, electron microscopy and 3D digital microscope analyses. Radiocarbon dating was also performed, aiming to get a more precise age-determination of the mummies. We wanted to learn the age of death, the possibility of diseases, general health conditions, and materials used in mummification for the deceased individuals, and the period from which the remains originate.

In the course of our research, we found that not only human remains, but also the organic and inorganic chemical analysis of the materials used for mummification can add a lot of new and exciting information to our knowledge about mummies. Thus, the identification of mummifying substances is also treated as a priority area during the project.

We are also experimenting with new procedures. Our goal is not only to realize a multidirectional research, but also to advance in the field of innovation in the future. Therefore, we also performed non-destructive ion beam studies on mummy remains with the help of ATOMKI employees in Debrecen. The preliminary results of the procedure are encouraging, and it is believed that the method may be suitable for a preliminary assessment of the bones at a later stage. This could make further chemical analysis on remains in future safer and easier.

The project resulted in several conference-presentations and professional posters at renowned national and international conferences. These successes gave us the chance to find new research partners and bring new mummy remains under investigation. Currently, the research material of the project includes the remains of the Egyptian human and animal mummies of the HNM's Semmelweis Museum of Medical History and the Török Aurél Collection in the Eötvös Lóránt University, Budapest, as well as the fish mummy of the Déri Museum, Debrecen.

Some of the test series have been completed, and other ones are still ongoing, as the evaluation of the results is. The first scientific publications were scheduled for 2020, which is unfortunately severely hampered by the limitations due to COVID-19.

With the scientific conference we organized, we want to create a tradition. We want to encourage renowned international researchers to participate in the mummy conferences held in Hungary every few years to become an integral part of the circulation of the Egyptian mummy research. In our opinion, it is essential to maintain old professional relationships and make new acquaintances also for the sake of research and to increase our professional knowledge. To maintain the research's smoothness, from time to time, the partial results available to us should be presented to the general public and the narrower profession in the framework of scientific lectures and professional posters. It makes it easier to clarify the issues before the publications appear, so we also organized a mummy workshop on one of the afternoons of the "Health and Life" conference. We presented our results in front of a forum of excellent researchers.

We are pleased to announce that there are currently more than twenty Hungarian and international institutions and more than thirty colleagues working free of charge for the success of the research. We hope that this number will get higher over time and that even more will join us.

At present, we hope that our relatively recent research will stand the test of time and enrich the positive image of Hungarian anthropologists and researchers abroad as a long-term project.

Health and Life in Ancient Egypt conference

In 2012, our conference "Cultures and Therapies. Ethnography and Science" failed due to financial reasons, so it was a special pleasure for us to successfully apply in 2018/2019 for an international conference with the Hungarian Natural History Museum and the HNM's Semmelweis Museum of Medical History. The conference entitled "Health and Life in Ancient Egypt. Mummies in Focus" was held in August 2019. Its program could be followed on the conference's website to make it available to those interested.

The conference was preceded by a press reception organized by the Hungarian Natural History Museum, for which a separate promo spot was created. The participants of the conference were greeted by dr. Ildiko Pap PhD, the honorary director of the Department of Anthropology of the Hungarian Natural History Museum and dr. Gábor Tomka, the deputy general director of the Hungarian National Museum and the Egyptian Embassy. In the introductory speech the three organizing institutions presented their respective research and plans. During the lectures, we enjoyed the hospitality

of the two partner institutions for three days. An exhibition was also organized in the Semmelweis Museum of Medical History in honour of the conference, which was presented to the participants by the museum staff on the occasion of a reception. During the conference, lectures, a poster section and two workshops were held, which provided opportunities to get to know the new results more thoroughly, also on the situation of the research in ancient TB, and discuss the issues that arose during the research of the examined mummy material in the Museum. Many of the presentations were held as introduction to discussions and consultations, which provided an opportunity for exchanges of professional experience.

The program ended with a visit to the Egyptian exhibition in the Museum of Fine Arts and another one to the Holy Right preserved in St. Stephen's Basilica. It was also possible to visit the periodical exhibition "Gold of Mexico" and try out the "Escape Room" of the Hungarian Natural History Museum.

Acknowledgement

The publisher of this volume would like to thank all the organizations and individuals, who made possible the conference and the publication of the volume, as well as the speakers and the volunteers involved in organizing and conducting it, who contributed to the success of the conference by their work.

We want to emphasize the work of Krisztina Scheffer and Enikő Szvák, who not only contributed to the lectures, but also took part in eliminating many of the pitfalls of the organization process.

We also say special thanks to the members of the Scientific Committee: Prof. dr. Rosalie David (University of Manchester), dr. Dina Faltings (Heidelberg Universität, Sammlung Ägyptologisches Institut), dr. Győry Hedvig PhD (HEFS), Prof.dr. Salima Ikram (American University of Cairo), habil. dr. György Pálfi (University Szeged, Anthropology Chair), dr. Ildikó Pap PhD (Hungarian Natural History Museum), Prof. dr. Wilfired Rosendahl (Reiss Engelhorn Museum), Stephanie Zesch (Reiss Engelhorn Museum), habil. dr. Albert Zink (Eurac Research), who took part in the scientific preparation of the conference.

We want again thank the authors of this volume for their professional contributions, and also for their patience and cooperation.

Also, special thanks for Hedvig Király for her assistance in editing work, and for Almamag Bt's work in graphic editing and for its understanding and flexibility during these times burdened with COVID-19.

We then are greatly indebted to Rosalie David in Manchester for her invaluable help by proofreading almost every article in the volume, despite her many other tasks and the situation in Manchester, severely affected by the virus.

We hope you will be as happy to read this volume as the AEC has released it.

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AN UNUSUAL ANCIENT EGYPTIAN MUMMY SKULL WITHIN A ROMAN PERIOD STUCCO HEAD

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Abstract

The Bavarian State Collection for Egyptian Art houses an unusual stucco head that has roughly been dated into the Roman Imperial Period, without known provenance. A CT-scan revealed inside the stucco cover an adult human skull consisting of a complete calvarium including face bones and the maxilla, but a complete absence of the mandible and any cervical bones. The skull is covered by a brown textile surface, eye balls are formed of fabric and the ethmoidal plate is perforated showing the typical features of ancient Egyptian embalming. The skull reveals male facial traits, open cranial sutures and minimal tooth wear suggesting young adult age of 20 – 30 years. Considerably after death the maxilla must have been separated from the mandible under dry conditions since several tooth crowns of the right maxilla are broken and sheared off laterally. Through the actual neck opening we obtained small tissue samples from the skull base, the adjacent linen cover and also more loosely woven linen between the "inner" linen and the stucco surface which were all used for radiocarbon dating. This indicates an age of the human material between 190 and 38 BC, of the inner linen between 45 BC and 57 AD and the outer linen between 130 and 244 AD. Accordingly, the skull must have been prepared around 45 – 25 BC; the mummy has then been "reused" c. 170 to 280 years later. Stable isotope analyses on the skull bone further indicate a balanced diet well compatible with Egyptian climate influence suggesting advanced social level. Although we have no evidence for any specific historically identified individual we believe that this must have been a person of Ptolemaic Egypt (dying around 40 BC) that was "important" enough to have his skull preserved for long time by the stucco cover.

Introduction

The Bavarian State Collection for Egyptian Art in Munich (Staatliches Museum Ägyptischer Kunst München) houses within its extensive stock the unusual object of a stucco head with anthropoid trait. The stucco face, however, appears somehow "stylistic", but does not show the real traits of a human face. Furthermore, the object is covered by an unusual type of "bonnet". The function of this "bonnet" is unclear and a matter of debate.

The provenance of the head is unknown. In order to obtain further information on the object, its time period and eventually its function, an extensive multidisciplinary scientific analysis was performed. This report describes the findings.

The object

The stucco head was obtained during a commercial auction and unfortunately no information is available as to the origin of the object. Due to the type of preparation as a "stucco head", it has been assumed to originate from ancient Egypt dating to the Roman Imperial Period.

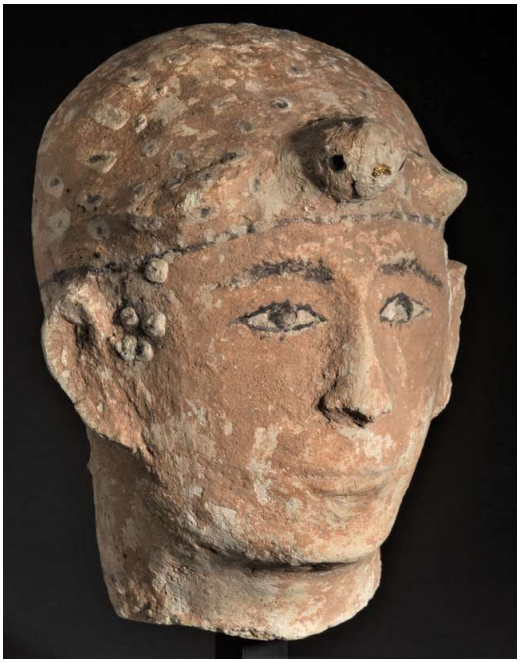

Figure 1. The stucco head in frontolateral view.

The head shows a human face with an unusual "stylistic" trait, narrow eyes (that are only depicted, but not modelled), a small nose, large ears and besides the aforementioned bonnet, a dot-like cover of "sideburns" and neck (Figure 1). At the high parietals there is a small defect (possibly the sequel of a fall of the object) revealing a dark-brown layer of textiles. The neck opening is now closed by a modern socket permitting the view inside the stucco head only via a small central hole. There, some textiles and dark-brown bone are detectable. At the rear side of the bonnet two metal rings are fixed to the stucco.

CT-analysis

As a further step, a complete CT-scan of the object was performed; technical details have been outlined previously.[1] This analysis surprisingly reveals that inside the stucco head, there is an adult human skull consisting of the neurocranium and the face ending at the maxilla, but without the mandible (Figure 2). Furthermore, both ethmoids are perforated and the eye balls are substituted with small textile balls. The cranial cavity is empty. The space of the mandible, and also the complete area of the neck are filled

1 Panzer et alii 2019.

and substituted with textile bindings. The object is covered by two layers of stucco with slightly different densities suggesting an "inner layer" had been superimposed with the second, "outer layer". The cervical spine is also completely lacking, but otherwise all osseous structures of the skull base are intact.

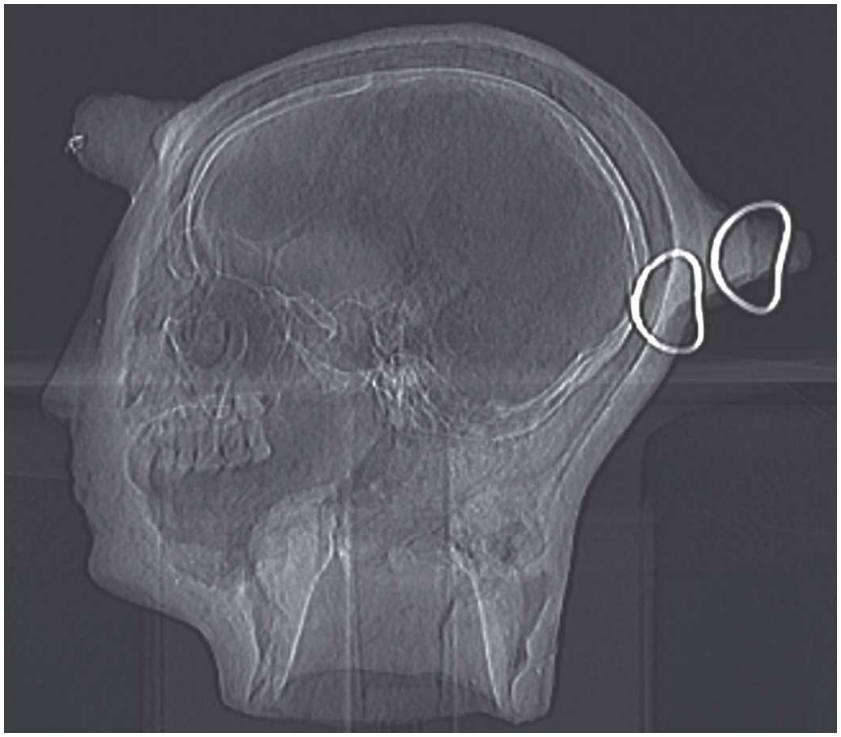

Figure 2. CT-scan of the stucco head in lateral projection. The head contains an adult human skull consisting of the neurocranium and the upper part of the face (without mandible).

The skull reveals male traits with strong muscular insertion zones at the mastoid and the occiput, the skull sutures are open and the teeth do not show any attrition. These features strongly suggest a young adult male of 20 to max. 30 years of age.

In addition to the anthropologically relevant information, the CT-scans shows a local destruction of the tooth crowns of the right lateral molars. This type of defects in teeth can only be caused by very dry conditions. The defects strongly suggest that the separation of the mandible from the maxilla took place a long period after the embalming when the body (and the teeth) had been completely dried out.

In summary, the CT-analysis showed that inside the stucco head there are parts of an adult male individual of 20 – 30 years with the typical manipulations of an ancient Egyptian type of embalming, whose maxilla had been separated from the mandible a long period after the initial embalming.

Radiocarbon dating

In order to obtain further insight, we removed small bone samples from the skull base through the aforementioned neck opening. During this procedure we additionally noticed that there were two different types of textiles – one of a finer texture and darker brown colour that was attached to the bone and a second one with a rougher texture and lighter brown colour. The latter was between the inner textiles and the stucco.

We used samples from the two textile types and from the skull base bone for radiocarbon dating according to established procedures, with extraction of bone collagen according to standard protocols and similarly of plant protein from the two textile samples.[2] All three sources provided sufficient amounts of protein for analysis.

The human skull bone revealed a calibrated age between 190 BC and 38 BC (95% confidence interval). Because of the collagen turnover of the skull bone, for individuals aged 20 – 30 years a lag time of about 10 – 15 years between radiocarbon dating and the time of death must be assumed. Consequently, the dating period has to be extended to a time-frame up to 25 BC.

The inner textile (that was adjacent to the skull bone) dated into the period between 44 BC and 57 AD (95% confidence interval). Accordingly, there was an overlap between the bone and the inner textile of approx. 20 years strongly suggesting that the individual had been embalmed in that short interval.

The external, rougher textile revealed a radiocarbon dating frame between 130 – 244 AD (95% confidence interval of measurements). This interval does not overlap with any of the previous data, suggesting that the remodelling of the skull and its inclusion into the stucco head took place approx. 160 – 280 years after the initial embalming.

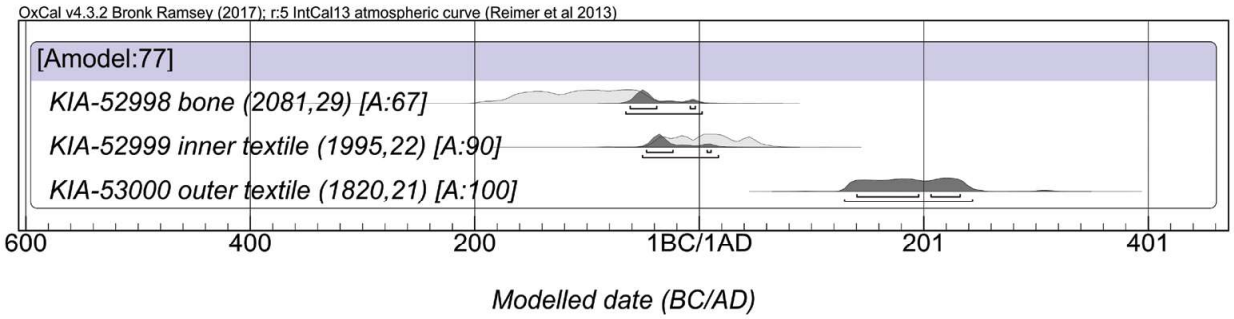

Figure 3. Results of the radiocarbon dating: there is an overlap of the dating period for the skull bone and the inner textile layer, but no overlap between bone/inner textile and the outer textile.

Stable isotope relations

In a further attempt to obtain more information about the individual we used skull bone material for a stable isotope analysis that can provide insight into the type and "quality" of nutrition and thereby also information about their local origin. Therefore, the collagen of the skull bone sample was also subjected to the stable isotope determination of carbon, nitrogen and sulphur as previously successfully applied.[3]

Stable isotope results for carbon ($\delta^{13}C$ value of -19.6 ‰), nitrogen ($\delta^{15}N$ value of 15.7 ‰) and sulphur ($\delta^{34}S$ value of 5.8 ‰) indicate a well-balanced diet of higher pro-

2 Reimer et alii 2013; Ramsey – Lee 2013; Stuiver – Polach 1977.
3 Lehn – Graw 2017.

tein quality, most probably from terrestrial animals, that is very compatible with arid zones near the Egyptian desert, but there was no evidence of major sea-fish consumption. A comparison with previously published data shows an even slightly "better" nutritional status ("higher trophic level") of an upper-class population of the 30th dynasty population of Giza/ Lower Egypt.[4]

In consequence, these analyses provide evidence of a well-nourished individual – thereby presumably of higher social status – compatible with the near-desert zone of Lower Egypt. There is no evidence for sea-fish consumption; however, Ptolemaic Egyptians frequently consumed fish from brackwater zones or may have eaten fish from the river Nile.[5]

Speculations on the individual

Although we have no indication of a specific historic individual whose skull was "reused" approx. 150 – 200 years after his death to form this stucco head, we can confirm that the individual comes from the Ptolemaic period of Egypt, with a typical embalming preparation of the skull according to ancient Egyptian rituals. The diet of this individual – a young adult male of 20 to max. 30 years of age – was sufficiently nutritious to suggest higher social status. He must have died around the years 45 – 40 BC since the inner layer of textiles and the skull bone overlap in this period.

Stucco overmodelling of skulls was used previously in ancient Egypt. However, the few known examples therefore clearly date to the Old Kingdom period (6th dynasty)[6] and an extensive overview of "overmodelled skulls" world-wide[7] not only confirms that there was a considerable time lag between other examples and this Ptolemaic skull, but also clearly indicates that the type of modelling was completely different. In consequence, the stucco head under consideration does not match with any other type of stucco embalming or overmodelling reported so far.

As a further and as yet unsolved mystery we have no indication about the function – not even the correct representation – of the bonnet (Figure 4). Any attribution to an ancient Egyptian deity is problematic, since vulture bonnets were customarily restricted to females and a "turtle bonnet" is unlikely, since the ancient Egyptians regarded the turtle as an animal of malign influence with no evidence of a particular cult.

So, we should consider a very different origin and function for this bonnet. It has some resemblance to parade helmets which were used particularly as a military symbol in the Roman period of the whole Roman Empire. However, until now, both the function and the exact type of representation remain unclear.

4 Thompson et alii 2005.
5 Sisma-Ventura et alii 2018.
6 Junker 1914.
7 Aufderheide 2009.

Figure 4. Lateral view of the stucco head which is covered by particular type of a "bonnet".

Future outlook

Although major information about the identity of the individual remains unknown – the short time-frame of his death and his high social status suggest a high-ranking military (?) person of the pre-Roman Ptolemaic Empire briefly before the Roman conquest. One day, it may be possible to identify the particular person.

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