THE TABLETS AND THEIR SCRIBES

THE PALAEOGRAPHY OF HITTITE CUNEIFORM
AND WRITING PRACTICES IN HITTITE ANATOLIA

Studien zu den Boğazköy-Texten

The Tablets and Their Scribes

The Palaeography of Hittite Cuneiform and Writing Practices in Hittite Anatolia

Proceedings of the Second International
HFR Symposium, Mainz, 2–4 May 2024

Edited by
Susanne Görke, Adam Kryszeń,
Gerfrid G. W. Müller, and Charles W. Steitler

For further information about our publishing program consult our website https://www.harrassowitz-verlag.de/

Printed on permanent/durable paper.
Printing and binding: Memminger MedienCentrum AG
Printed in Germany

CONTENTS

ABBREVIATIONS

Bibliographical Abbreviations

AA	*Archäologischer Anzeiger*
ABoT	*Ankara Arkeoloji Müzesinde bulunan Boğazköy Tabletleri / Boğazköy Tablets in the Archaeological Museum of Ankara*
ÄAT	Ägypten und Altes Testament
AION	*Annali dell'Istituto Universitario Orientale di Napoli*
AMD	Ancient Magic and Divination
AnSt	*Anatolian Studies*
AOAT	Alter Orient und Altes Testament
AoF	*Altorientalische Forschungen*
BBVO	Berliner Beiträge zum Vorderen Orient
BiOr	*Bibliotheca Orientalis*
BoHa	Boğazköy-Ḫattuša. Ergebnisse der Ausgrabungen
BSIEL	Brill's Studies in Indo-European Languages and Linguistics
CAD	*The Assyrian Dictionary of the Oriental Institute of the University of Chicago.* Chicago: Oriental Institute, 1956–2010.
CHANE	Culture and History of the Ancient Near East
CHD	*The Hittite Dictionary of the Oriental Institute of the University of Chicago.* Chicago: Oriental Institute, 1980–.
CHDS	Chicago Hittite Dictionary. Supplements
ChS	Corpus der hurritischen Sprachdenkmäler
CollAnat	*Colloquium Anatolicum*
CTH	Emmanuel Laroche. *Catalogue des textes hittites.* Paris: Klincksieck, 1971 (with supplements in *RHA* 30 [1972]: 94–133 and *RHA* 33 [1973]: 68–71; now extensively expanded and revised in the online *Catalog der Texte der Hethiter* of the *Hethitologie-Portal Mainz*: Silvin Košak, Gerfrid G.W. Müller, Susanne Görke, and Charles W. Steitler (eds.). hethiter.net/*CTH* – last accessed 09.09.2024).
DAAM	Documenta Antiqua Asiae Minoris
DBH	Dresdner Beiträge zur Hethitologie
DBH 43/2	İlknur Taş. *Hethitische Texte in Transkription. Bo 8264 – Bo 8485. Teil 2: Autographien.* DBH 43/2. Wiesbaden: Harrassowitz, 2017.
DBH 46/2	Rukiye Akdoğan. *Hethitische Texte. Bo 4658 – Bo 5000. Teil 2: Autographien.* DBH 46/2. Wiesbaden: Harrassowitz, 2016.
DMOA	Documenta et Monumenta Orientis Antiqui
HANEM	History of the Ancient Near East. Monographs
HbOr	Handbuch der Orientalistik / Handbook of Oriental Studies

HED	Jaan Puhvel. *Hittite Etymological Dictionary.* Trends in Linguistics. Documentation. Berlin et al.: de Gruyter, 1984–.
HEG	Johann Tischler. *Hethitisches etymologisches Glossar.* Innsbrucker Beiträge zur Sprachwissenschaft 20. Innsbruck: Institut für Sprachwissenschaft, 1977–2016.
hethiter.net/: *CTH … :*	
	online text editions on the *Hethitologie-Portal Mainz*
HKM	Hethitische Keilschrifttafeln aus Maşat Höyük
HT	Hittite Texts in the Cuneiform Character from the Tablets in the British Museum. Autographed by Leonard William King – London 1920.
HW²	*Hethitisches Wörterbuch. Zweite, völlig neubearbeitete Auflage auf der Grundlage der edierten hethitischen Texte.* Indogermanische Bibliothek, zweite Reihe: Wörterbücher. Heidelberg: Winter, 1975–.
HZL	Christel Rüster and Erich Neu. Hethitisches Zeichenlexikon. Inventar und Interpretation der Keilschriftzeichen aus den Boğazköy-Texten. StBoTB 2. Wiesbaden: Harrassowitz, 1989.
IBoT	İstanbul Arkeoloji Müzelerinde bulunan Boğazköy Tabletleri(nden seçme metinler)
IM	*Istanbuler Mitteilungen*
JANER	*Journal of Ancient Near Eastern Religions*
JAOS	*Journal of the American Oriental Society*
JCS	*Journal of Cuneiform Studies*
JEOL	*Jaarbericht van het Vooraziatisch-Egyptisch Genootschap "Ex Oriente Lux"*
JNES	*Journal of Near Eastern Studies*
KBo	Keilschrifttexte aus Boghazköy
KIM	*Kültepe Internation Meetings…*
KUB	Keilschrifturkunden aus Boghazköy
KuSa 1/1	Gernot Wilhelm. *Keilschrifttexte aus Gebäude A.* Kuşaklı–Šarišša. Band 1/1. Rahden: Leidorf, 1997.
MDOG	*Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin*
MTK	Materiale Textkulturen
MVAeG	Mitteilungen der Vorderasiatisch-Ägyptischen Gesellschaft
NABU	*N. A. B. U. Nouvelles Assyriologiques Brèves et Utilitaires*
OA	*Oriens Antiquus*
OAM	*Orientis Antiqui Miscellanea*
OLZ	*Orientalistische Literaturzeitung*
OrNS	*Orientalia. Nova Series*
PIHANS	Publications de l'Institut historique et archéologique néerlandais de Stamboul = Uitgaven van het Nederlands Historisch-Archaeologisch Instituut te Istanbul
RANT	*Res Antiquae*
RlA	*Reallexikon der Assyriologie (und Vorderasiatischen Archäologie)*
SAA	State Archives of Assyria
SAMR	Studies in Ancient Mediterranean Religions

SANER	Studies in Ancient Near Eastern Records
SMEA	*Studi micenei ed egeo-anatolici*
StAs	Studia Asiana
StBoT	Studien zu den Boğazköy-Texten
StBoTB	Studien zu den Boğazköy-Texten. Beihefte
StMed	Studia Mediterranea
THeth	Texte der Hethiter
TLH^{dig}	Thesaurus Linguarum Hethaeorum digitalis
TTKY	Türk Tarih Kurumu Yayınları
TUAT	Texte aus der Umwelt des Alten Testaments
TUAT NF	Texte aus der Umwelt des Alten Testaments. Neue Folge
TÜBA-AR	*Türkiye Bilimler Akademisi Arkeoloji Dergisi*
UAVA	Untersuchungen zur Assyriologie und Vorderasiatischen Archäologie
VSNF	Vorderasiatische Schriftdenkmäler der Staatlichen Museen zu Berlin. Neue Folge
WAW	Society of Biblical Literature Writings from the Ancient World
WdO	*Die Welt des Orients*
ZA	*Zeitschrift für Assyriologie und Vorderasiatische Archäologie*
ZVS	Zeitschrift für vergleichende Sprachforschung

General Abbreviations

…/a to …/z	Inventory number of Boğazköy tablets excavated 1931–1967	LNH	Late New Hittite
		LNS	Late New Script
		MH	Middle Hittite
ah.	Althethitisch	mh.	Mittelhethitisch
BCS	Büklükale Cuneiform Seal	MS	Middle Hittite Script
BHS	Büklükale Hieroglyphic Seal	ms.	manuscript
BKT	Büklükale Text	NH	New Hittite
Bo	Inventory number of tablets found at Boğazköy	NS	New Hittite Script
		obv.	obverse
DN	divine name	OH	Old Hittite
ENS	Early New Script	Or.	Inventory number of tablets found at Ortaköy
HFR	Hethitische Festrituale		
Kp	Inventory number of tablets found at Kayalıpınar	OS	Old Hittite Script
		PN	personal name
KpT	= DAAM 1	p.	page
KuT	Text number of texts found at Kuşaklı	rev.	reverse
		SZM	Inventory number of the Szépművészeti Múzeum Budapest
l.e.	left edge		
lo.e.	lower edge	u.e.	upper edge
LMS	Late Middle Script	viz.	namely

Symbols

?	reading of a sign is doubtful		*	reconstructed form
(?)	reading of sign string is doubtful		+	fragments join directly; after reference to a single fragment adjoining other fragment(s) (listed elsewhere)
!	abnormal or mistaken sign; designation of column or side of tablet varies from hand copy			
			(+)	fragments join indirectly
[ ]	encloses lost text		//	duplicate/parallel text
[( )]	encloses restorations according to duplicate text		/	line break (in transliteration)
			⸢	*Glossenkeil* (single)
⸢ ⸣	encloses damaged but legible signs		⸤	*Glossenkeil* (double)
⟨ ⟩	omitted by scribal error		=	separates morphological elements within words
⟨⟨ ⟩⟩	sign to be omitted			
x	illegible sign (in transliteration		⸗	for division of logograms at the end of printed lines
[x x]	indicates amount of space in gaps; each x = space for one sign			
...	encloses signs over erasure			

Cursive text in translations indicates uncertain meanings or restorations.

PREFACE

This volume presents the contributions of the Second International HFR Symposium that took place at the Academy of Sciences and Literature | Mainz, May 2–4, 2024. It thereby constitutes the second in a series of symposia of the long-term project "Das Corpus der hethitischen Festrituale: Staatliche Verwaltung des Kultwesens im spät-bronzezeitlichen Anatolien" (HFR) that are intended to foster regular interaction within the scholarly community of Hittitologists. The first symposium "Cult, Temple, Sacred Spaces. Cult practices and Cult spaces in Hittite Anatolia and Neighbouring Cultures" took place in Mainz in June 2019 and its proceedings were published as StBoT 66 (2020). Further symposia devoted to linguistic, economic, political, social and historical religious perspectives of the Hittite cult are planned for the future.

The topic of this second HFR symposium was chosen – in accordance with the research objectives planned for the various phases of HFR – to provide a palaeographic study concluding the first third of the entire project. This entails various approaches to writing practices, including the development of automatic tools to recognize and analyze sign forms and handwriting of individual scribes, a task undertaken mainly by Gerfrid G.W. Müller. Since the online publication of the HFR *Basiscorpus* in 2021, the festival texts serve as a perfect departure point for answering questions regarding the organization and realization of the writing process in Hittite Anatolia. The aim of the Second International Symposium was thus to discuss recent developments and approaches to numerous questions: In which way can methods of digital humanities contribute to understanding ancient writing practices? What kind of automatic tools are at our disposal? In which way and to which degree can traditional, macroscopic methods be useful? How many scribes were active in producing a well-defined corpus? Which writing practices and scribal customs are recognizable in various text genres? How do palaeographic conventions differ in different Hittite sites? These questions have been explored in more detail in the following introduction to the symposium's proceedings by Gerfrid G.W. Müller.

It was a special honour for us that the director of the Ankara Museum of Anatolian Civilizations, Yusuf Kıraç, was able to attend our symposium. His museum hosts a huge quantity of the tablets discovered at the Hittite capital of Ḫattuša and the Hittitological community is grateful that he and his team welcome visitors from abroad to study the original tablets in a stimulant and friendly environment.

We want to express our thanks to the primary organizers of the symposium, Elisabeth Rieken (Marburg) and Daniel Schwemer (Würzburg), who encouraged us to publish the proceedings in the series *Studien zu den Boğazköy-Texten*, and – as editors of this series – provided us with generous feedback. We were fortunate to have been able to use the facilities of the Academy of Sciences and Literatur | Mainz as an

extremely suitable conference venue. The Academy is the primary organizational and financial supporter of the HFR project and simultaneously houses the *Hethitologie-Archiv*, which is one of three research sites (alongside Würzburg University and Marburg University) where indispensable analog and digital tools for ancient Anatolian studies have been developed over the last decades. The HFR team is very grateful to the administration and staff of the Academy for their support.

As editors, we would like to express our gratitude to all the contributors whom we asked to spend their summer finishing their contributions to make this volume available within less than a year after the conference. We are grateful to Valentin Gusev for the work on the typesetting of this volume. Finally, we express our gratitude to the staff of the Harrassowitz Verlag for their technical support during the process of forming this volume into a print publication.

Marburg / Mainz, December 2024   Susanne Görke

Adam Kryszeń

Gerfrid G.W. Müller

Charles W. Steitler

Yusuf Kıraç (left), Director of the Museum of Anatolian Civilisations at Ankara, receiving from Daniel Schwemer (right) an original drawing by Heinrich Otten for *Keilschrifttexte aus Boghazköi* 27 (1982), the first volume produced at the Academy of Sciences and Literature | Mainz within the framework of the research programme of the German Academies: KBo 27. 42 obv. ii, Hittite KI.LAM Festival.

ANADOLU MEDİNİYETLERİ MÜZESİ
DİREKTÖRÜN KUNUŞMASI

Yusuf Kıraç

Anadolu Mediniyetleri Müzesi, Ankara

Ankara'da ilk müze, Atatürk'ün telkinleriyle merkezde bir "Eti Müzesi" kurma fikrinden hareket edilerek Kültür Müdürü Mübarek Galip Bey tarafından 1921 yılında Ankara Kalesinin Akkale burcunda kurulmuştur. Yine Cumhuriyetin ilk yıllarından itibaren Ankara'ya gelen eserler Augustus Mabedi ile Roma Hamamında da toplanmıştır.

1938 yılında Kültür Müdürü Hamit Zübeyr Koşay tarafından, metruk halde bulunan Mahmut Paşa Bedesteni ve Kurşunlu Hanın onarılarak müze binası olarak kullanılması fikri kabul edilerek, 1938 yılından 1968'e kadar devam eden bir restorasyon çalışması başlatılmıştır. Bedestenin orta bölümünde yer alan 10 kubbeli mekânın büyük bir kısmının onarımının 1943 yılında bitirilmesi ile eserler, Alman Hititolog Prof. Dr. Hans Gustav Güterbock başkanlığındaki bir heyet tarafından yerleştirilmiş ve ziyarete açılmıştır.

Müze yapısı 1968 yılında son şeklini almıştır. Bugün idari bina olarak kullanılan Kurşunlu Han'da araştırmacı odaları, kütüphane, konferans salonu, eser depoları, laboratuvar ve iş atölyeleri yer almakta, Mahmut Paşa Bedesteni ise teşhir salonu ve eğitim ve deneyim alanı olarak kullanılmaktadır.

Konuşmamın bu bölümünde bir parantez açarak Sayın Prof. Dr. Hans Gustav Güterbock'dan bahsetmeden geçemeyeceğim. Güterbock 27 Mayıs 1908' yılında Berlin'de doğmuş ve genç yaşlardan itibaren Eski Yakındoğu dillerine, tarihine ilgi duymaya başlamıştır. Eğitim ve öğrenimini Hititoloji, Sumeroloji-Assirioloji dillerinde döneminin en ünlü bilginlerinin yanında tamamlamış ve Berlin Müzesinde ilk görevine başlamıştır.

1936–1948 yılları arasında ülkemizin ilk Hititoloji disiplininin kurucusu olarak, eski Anadolu Tarihi ve kültürleri için çok önemli olan bu bilim dalının kurulup gelişmesinde, uzmanların yetişmesinde, öğretim ve araştırma alanında gerçekleştirilmesinde gerekenlerin en çoğunu başarmış ve öğrencilerinin orijinal Hitit tabletlerini yayımlamaya başlamalarını sağlamıştır.

Uppsala Üniversitesi'nde misafir profesör olarak görev aldıktan sonra, 1949 yılında Şikago Üniversitesi "The Oriental Institute"de göreve başlayan H. G. Güterbock 1976 yılında seçkin emeritus profesör oldu.

Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi'nde Hititoloji'nin müstakil bir disiplin olarak gelişmesini, ilk Hititoloji kütüphanesinin kurulmasını sağlamıştır. Öğrencileri üniversitede, müzelerde görevlendirilmişler, çivi yazılı tablet arşivlerinin sorumluluğunu üstlenmişlerdir. Anadolu Medeniyetleri Müzesi büyük salonunun tertip ve tanzimi de yine onun eseridir.

Boğazköy kazılarına Hititolog olarak katılmış, Hitit çivi yazılı metinlerini, hiyeroglif yazıtlı Hitit kral mühürlerini ayrı ciltler halinde yayımlamış, hiyerogliflerin okunmasına, anlaşılmasına büyük katkılarda bulunmuş, bu konuda çalışan bilginler arasında seçkin ve saygın yerin sahibi olmuştur. TTK kazılarında keşfedilmiş hiyeroglifli belgeleri, tam zamanında, bilim dünyasına sunmuştur.

O, Hitit kültürünün her alanında yoğunlaştırdığı araştırmalarını, yani tarihini, dilini, edebiyatını, dinini, mitolojisini, gramerini, kanunlarını, devlet yönetimini, sosyal yapısını, etnik ayrılıkları bütün detay ve özellikleriyle aydınlatan ve yazılı belgelerin ışığında sanat eserlerini yorumlayan ender hititologların başında yerini almıştır. Onun Hititoloji alanında aydınlatmaya çalışmadığı, üzerinde durmadığı bir konu, bir problem yoktur. Meslektaşları Hititoloji disiplinine H.G. Güterbock kadar katkıda bulunmuş bilginlerin az olduğunu, yerinin hititologlar listesinde çok özel olduğunu, haklı olarak, vurgulamaktadırlar.

O, üstün araştırıcılığının yanında, kendisini Hititolojiye adamış bir hoca olarak, yaşamının sonuna kadar kendisiyle ilişki kurmuş olan zamanın bütün hititologlarına yaptığı yardımlarını, tavsiyelerini, öneri ve tenkitlerini hiç azaltmamış ve bugün ondan yararlanma şansına sahip olmuş bilginlerin sayısı azımsanamayacak bir seviyeye gelmiştir.

Güterbock yaşamının son yıllarını büyük bir projenin gerçekleşmesine "Şikago Üniversitesi Hitit Lügati Projesine" adamıştır. Proje üzerinde çalışan meslektaşları onun katılım ve katkılarından övgüyle söz etmektedirler; bu lügat onun en önemli eserlerinden biri olacaktır.

Güterbock'a ithaf edilen iki armağan kitabı 1974 ve 1986 yılında iki ciltte derlenmiştir. "Kumarbi Efsanesi" hakkındaki kitabı ayrı olarak, değişik konulardaki makaleleri de Türk Tarih Kurumu dergisi Belleten'de de yayımlanmıştır.

Akademi üyelikleri, şeref doktorluklarıyla ödüllendirilmiş olan Güterbock, Türkiye Bilimler Akademisi'nin şeref üyesi; The British Academy'nin, The American Academy of Arts and Sciences'ın, Bayerische Akademie der Wissenschaften'in üyesi; Uppsala ve Ankara Üniversitelerinin şeref doktorudur.

Dil ve Tarih-Coğrafya Fakültesi'nin ilk Hititoloji profesörü ve aynı zamanda Türk Tarih Kurumu'nun şeref üyesi olan Güterbock 24 Mart 2000 yılında 91 yaşında Şikago'da vefat etmiştir. Kendisini bilime Hititoloji'ye ve ülkemize yaptığı katkılarından dolayı şükranla anıyoruz.

Bugün kendine özgü koleksiyonları ile dünyanın sayılı müzeleri arasında yer alan Anadolu Medeniyetleri Müzesi 1997 yılında Avrupa'da yılın müzesi ödülünü almıştır. Anadolu Arkeolojisi, Paleolitik Çağdan başlayarak günümüze kadar Osmanlı devrinin bu tarihi mekânlarında kronolojik bir sırayla sergilenmekte olup daha da önemlisi müzenin teşhir ve depolarında yer alan eserlerden hiçbirisi başka bir ülkeden kaçırılmış değil, sadece Anadolu eserleri olup, herhangi bir kaçakçılığa konu olmamıştır.

Müzemiz Ayrıca Dünya Miras Listesine dahil edilmiş olan Ankara'ya yaklaşık 90 km. mesafede yer alan Friglerin Başkenti Gordion'da bulunan Gordion Müzesini, Ankara'nın içinde yer alan Roma Dönemi Caracalla Hamamını, Augustus Mabedini ve Ankyra Tiyatrosu ve Arkeoloparkını da bünyesinde barındırmaktadır.

Anadolu Medeniyetleri Müzesi Mahmut Paşa Bedesteni, teşhir salonlarında Paleolitik Dönem, Kalkolitik Dönem, Erken Tunç Dönemi, Asur Ticaret Kolonileri Dönemi, Hitit Dönemi, Geç Hitit Dönemi, Frig Dönemi, Urartu Dönemi, Pers Dönemi, Hellenistik Dönem, Grek ve Roma Dönemi ile Selçuklu ve Osmanlı Dönemine ait eserler kronolojik olarak teşhir edilmektedir.

Müzenin farklı kategorilerde oluşturulmuş toplam 35 deposunda 200.000 civarında eser bulunmaktadır. Bahis konusu depolardan Tablet ve Bulla Deposunda ise 39.447 Tablet ve 3.551 adet Bulla yer almaktadır. Söz konusu tabletlerden 18.955 adedini Kültepe Kaniş Karum Asur Tabletleri oluştururken, büyük bir kısmını Boğazköy Hitit Tabletleri, oluşturmaktadır.

Boğazköy'de bulunan Hitit tabletlerinin sayısı bugüne kadar yaklaşık 32.000'e ulaşmış ve bunların çoğu çivi yazılı el kopyaları olarak yayınlanmıştır. Oldukça hızlı ve yoğun bir yayın sürecine rağmen, Boğazköy kazılarından kaynaklanan ve hala yayınlanmamış tablet parçaları bulunmaktadır. "Bo" simgesini taşıyan bu tabletler, 1906–1912 yılları arasındaki erken dönem Osmanlı-Alman kazılarında ortaya çıkmış ve sonradan konservasyon amacıyla Berlin'deki *Staatliche Museen* Devlet Müzesine gönderilmiştir. Uzun yıllar bürokratik ve idari girişimlerden sonra söz konusu tabletlerin son kısmı 1987 yılında Türkiye'ye iade edilmiştir.

Doğu Berlin'e gönderilen ve daha sonra Bakanlığımızın girişimleriyle 1987 yılında müzemize getirilen 7.308 adet tablet 1988 yılında Türk Hititologlardan oluşan bilimsel yeterliliği olan akademisyenlere araştırma ve yayımlama görevi ile verilmiştir. Ancak yaklaşık 25 yıllık bir dönemden sonra, ekibin bazı üyeleri vefat etmiş, bazıları emekli olmuş veya ekip içindeki görevlerinden ayrılmışlardır. Bu nedenle Türkiye Cumhuriyeti Kültür Bakanlığı'nın 2010 yılında aldığı bir karara dayanarak, yayınlanmamış Bo-metinleri üzerinde çalışmaya devam etmek üzere yeni bir Türk Hititolog ekibi oluşturulmuştur. Bunlar kısmen eski çalışma grubundan bilim insanları ve Ankara, İstanbul, Çorum, Kocaeli, Adana ve Şikago'daki çeşitli üniversiteler ve müzelerden 21 genç Hititolog arasında tekrar paylaştırılmıştır. Her ekip üyesi sorumluluğuna 170, 190 ya da 250 parça olmak üzere bir tablet grubu almıştır.

2020 yılında ise araştırmacılar arasında yaşanan telif hakları ile ilgili mahkeme ve teftiş soruşturmaları sonucunda Kültür ve Turizm Bakanlığı tarafından daha önce verilmiş olan araştırma, inceleme ve yayım haklarının bakanlığa geçtiği tüm araştırmacılara resmi olarak bildirilmiştir. Alınan cevaplara göre yayımlanmamış tabletlerle ilgili yıllık 50 adet olmak üzere Bakanlığımıza veya müzemize başvuru yapan akademisyenlere imzalanacak protokol kapsamında bir yıl içinde araştırma, ikinci yıl uzatma ve üçüncü yılda yayımlama hakkı tanınmış, 3 yıl içinde yayım yapmayan akademisyenin haklarının tekrar bakanlığa geçeceği şeklinde mevzuat düzenlemesi yapılmıştır.

Bilimsel literatürde "yayımlanmamış Bo-metinleri" olarak bilinen yazım eserleri, yüksek tarihi ve kültürel değere sahip orijinal antik belgeler kategorisine aittir. Bo-metinleri fiziksel bakımdan çoğunlukla küçük ve kötü korunmuş yapıya sahip olsa da, yeni kopya ve join metinlerin keşfedilmesi ve bunun sayesinde Boğazköy'den iyi bilinen ve daha iyi korunmuş kompozisyonlara doğrudan bağlantılar yapılması potansiyeli her zaman mevcuttur ve bu da mevcut Hitit yazım malzemesini kesinlikle zenginleştirecektir. Bo-metinleri araştırmasının uzun vadeli amacı, daha fazla epigrafik

malzemeyi kullanarak Hitit dili, tarihi ve kültürüne ilişkin sonuçları gelecekteki ya-yımlar aracılığıyla beşerî bilimlerdeki akademisyenler topluluğuna erişilebilir kılmak-tır. Yayımlanmamış Bo-metinlerinin edisyonu, son otuz yılda Hititoloji'nin önemli bir görevi haline gelmiştir ve Hititoloji dünyası tarafından uzun zamandır beklenmektedir. Bu anlamda, epigrafik malzemenin hem kitap olarak hem de elektronik ortamda (fo-toğraflar ve özellikle 3D taramalar) basılması ve yayımlanması, uluslararası bilimsel çabalarının beklenen ve sevindirici bir sonucu olacaktır.

Ben bu duygu ve düşüncelerle Anadolu'nun Kadim Tarihinin, Medeniyetlerinin, geçmiş uygarlıklarının yaşantısının ve en önemlisi kültür varlığı olarak günümüze ka-dar gelen tabletlerin yani Hitit Dilinin araştırılmasında, bilimsel olarak çalışılıp yayım-lanmasında emeği geçen tüm akademisyenlere, bu sempozyumun hazırlanmasında emeği geçenlere müzem adına ve ülkem adına teşekkür ediyor şükranlarımı sunuyorum.

GREETINGS FROM THE DIRECTOR
OF THE MUSEUM OF ANATOLIAN CIVILIZATIONS

Yusuf Kıraç

Museum of Anatolian Civilizations, Ankara

The first museum in Ankara was established in 1921 by Mübarek Galip Bey, Director of Culture, in the *Akkale Tower* of *Ankara Castle*, based on the idea of establishing an "*Eti Museum*" in the city center of Ankara, following a suggestion of Atatürk. In the first years of the Republic, artefacts coming to Ankara were collected in the *Augustus Temple* and the *Roman Baths*.

In 1938, the Director of Culture Hamit Zübeyr Koşay accepted the idea of repairing both the abandoned *Mahmut Pasha Bedesten* and *Kurşunlu Han* and of using them jointly as a museum building. Restoration work was executed from 1938 to 1968. After the restoration of a large part of the 10-domed space in the central part of the *Bedesten* was completed in 1943, the artefacts were put on display by a committee headed by the German Hittitologist Prof. Dr. Hans Gustav Güterbock and opened to visitors.

The museum building took on its final shape in 1968. Today, the *Kurşunlu Han* serves as an administrative building, with research rooms, a library, a conference hall, artefact storage rooms, laboratories, and workshops, while the *Mahmut Pasha Bedesten* is used as an exhibition hall and an educational area.

At this point in my speech, I would like to focus our attention on Prof. Dr. Hans Gustav Güterbock. Güterbock was born in Berlin on May 27, 1908; he was interested in ancient Near Eastern languages and history from his youth on. He completed his education and training in Hittitology, Sumerology and Assyriology under the most famous scholars of his time and his first position was at the Berlin Museum.

Between 1936 and 1948, as the founder of the discipline of Hittitology in Turkey, he was able to establish and develop this discipline, which is very important for ancient Anatolian history and cultures. He trained experts, undertook research and taught students, which thus enabled them to publish original Hittite tablets.

After spending time as a visiting professor at Uppsala University, Güterbock joined the Oriental Institute (now Institute for the Study of Ancient Cultures [ISAC]) at the University of Chicago in 1949 and became a distinguished emeritus professor in 1976.

He ensured the formation of Hittitology as an independent discipline at the Faculty of Language, History and Geography of Ankara University and the establishment of the first Hittitological library in Turkey. His students were employed at the university and museums and took responsibility for the archives of cuneiform tablets. The layout and arrangement of the great hall of the Museum of Anatolian Civilizations is also his work.

Güterbock participated in excavations at Boğazköy as a Hittitologist: he published Hittite cuneiform texts and Hittite royal seals with hieroglyphic inscriptions in multiple volumes. His work enlarged our knowledge of deciphering and understanding hieroglyphs. On the whole, he became distinguished and respected among scholars in his field. He promptly presented the hieroglyphic documents that were discovered during the excavations of the *Türk Tarih Kurumu* to the world of science.

He has been one of the rare Hittitologists who focused their research on every field of Hittite culture, i. e. history, language, literature, religion, mythology, grammar, laws, state administration, and social structure. He interpreted the artworks in light of the written documents. There is hardly a subject or problem in the field of Hittitology that he did not endeavor to elucidate. Few scholars have contributed to the discipline of Hittitology as much as Hans Gustav Güterbock.

In addition to his outstanding research and his devotion to Hittitology, Güterbock was a teacher who never withheld his help, advice, suggestions and criticisms to all the Hittitologists who were in contact with him until the end of his life. Until today the number of scholars who have had the chance to benefit from him has reached a level that cannot be underestimated.

Güterbock devoted the last years of his life to the realization of a major project, the *Hittite Dictionary* project of the University of Chicago. His colleagues working on the project speak highly of his participation and contribution; this dictionary is one of his most important contributions to the field.

Two publications were presented to him in his honor, 1974 and 1986. Apart from his book on the "Legend of Kumarbi", his articles on various subjects were published also in *Belleten*, the journal of the *Türk Tarih Kurumu*.

He was an honorary member of the Turkish Academy of Sciences, a member of the *British Academy*, the *American Academy of Arts and Sciences*, the *Bayerische Akademie der Wissenschaften*, and he held honorary doctorates from Uppsala and Ankara Universities.

Güterbock, the first professor of Hittitology at the Faculty of Language, History and Geography at Ankara University and also an honorary member of the Turkish Historical Society, died in Chicago on March 24, 2000 at the age of 91. We remember him with gratitude for his contributions to science, Hittitology, and our country.

Today, the Museum of Anatolian Civilizations with its unique collections is one of the world's leading museums. For its achievements, it received the European Museum of the Year award in 1997. Its exhibition of Anatolian Archaeology covers the entire timeline from the Paleolithic Age to the present day, while the setting in the buildings of the Ottoman period adds a special historic flair. More importantly, none of the artefacts in the museum's exhibitions and depots have been smuggled from another country.

Our museum also includes the *Gordion Museum* in Gordion, the capital of the Phrygians, which is included in the World Heritage List and located about 90 km west of Ankara, as well as the *Roman Baths of Caracalla*, the *Temple of Augustus*, and the *Ankyra Theatre* and *Archaeopark* in Ankara.

The exhibition halls of the Museum of Anatolian Civilizations in the *Mahmut Pasha Bedesteni* display artefacts in chronological order from the Paleolithic and Chalcolithic Periods, through the Early Bronze Age, the period of the Assyrian Trade Colonies, the Hittite Period, the Late Hittite Period, the Phrygian and Urartian Period, the Persian, Hellenistic, Greek and Roman Periods, and up to the Seljuk and Ottoman Periods.

There are around 200,000 artefacts in a total of 35 depots of the museum. Among these, the Tablet and Bulla storerooms contain 39,447 tablets and 3,551 bullae. While 18,955 of these tablets are Assyrian tablets from Kültepe Karum Kaniş, the majority are Hittite tablets from Boğazköy.

Up to now, the number of Hittite tablets found at Boğazköy has reached approximately 32,000, most of which have been published as cuneiform hand copies. Despite a very rapid and intensive publication process, there are still unpublished fragments of tablets from the Boğazköy excavations. These tablets, bearing the abbreviation "Bo", were unearthed during the early Ottoman-German excavations between 1906 and 1912 and later sent to the *Staatliche Museen* in Berlin for conservation. After many years of bureaucratic and administrative attempts, the last part of the tablets was returned to Turkey in 1987.

The 7,308 tablets, which were sent to East Berlin and then brought to our museum in 1987 with the initiatives of our Ministry, were handed over to a team of scientifically qualified Turkish Hittitologists for research and publication in 1988. However, after a period of approximately 25 years, some members of the team had passed away, and some retired or left their positions. Therefore, based on a decision taken by the Turkish Ministry of Culture in 2010, a new team of Turkish Hittitologists was formed to continue work on the unpublished Bo-texts. These were partly redistributed between the scientists from the former working group and 21 young Hittitologists from various universities and museums in Ankara, Istanbul, Çorum, Kocaeli, Adana, and Chicago. Each team member took responsibility for a group of 170, 190, or 250 tablets.

In 2020, all researchers were officially notified that the research, examination, and publication rights previously granted by the Ministry of Culture and Tourism were transferred to the Ministry as a result of court and inspection investigations regarding copyrights between researchers. Then, academics who applied to our Ministry or our museum with an annual number of 50 unpublished tablets were given the right to do research in year one, with a possible extension to year two, and then publish in the third year within the scope of the signed protocol. According to a legislative arrangement, the rights of an academic who does not publish within three years will be given back to the ministry.

The fragments, known in the scientific literature as "(un)published Bo-texts", are original ancient documents of high historical and cultural value. Although the Bo-texts are often physically small and poorly preserved, there is always the potential for the discovery of new copies and joining texts, with direct connections to well-known and better-preserved compositions from Boğazköy, which would certainly enrich the existing Hittite scribal material. The long-term goal of the Bo-texts research is to publish more epigraphic material to offer conclusions about Hittite language, history, and culture and to make them accessible to the community of scholars in the humanities

through future publications. The edition of unpublished Bo-texts has become an important task of Hittitology in the last thirty years and has been long awaited by the world of Hittitology. In this sense, the publication and dissemination of the epigraphic material, both in printed and in electronic forms (photographs and especially 3D scans) will be an anticipated and well-received outcome of this international scholarly endeavor.

With these feelings and thoughts, I hope that the information that comes out of this symposium will be a resource for future generations that will contribute to the understanding of the Ancient History of Anatolia, the Hittite tablets, and the Hittite language. I would like to thank and express my gratitude to the Academy of Sciences and Literature in Mainz, the University of Würzburg, and all who contributed to the symposium.

INTRODUCTION

Gerfrid G.W. Müller

Julius-Maximilians-Universität Würzburg

Akademie der Wissenschaften und der Literatur | Mainz

What appearance do Hittite clay tablets, their layout and their characters have over time, in geographical space and in the individual design of their scribes? How can the countless individual observations be reliably used, classified and compared?

The symposium discussed a variety of phenomena related to scribal habits and practices in the Hittite kingdom. This includes both systematic changes that the cuneiform script has undergone throughout its history in Anatolia, as well as handwriting and idiosyncrasies of individual scribes, and the habits to prepare and arrange tablets, text, sealings and space. By studying the overall appearance of the tablet and sign shapes it is, in principle, not only possible to date the text, but also to attribute it to a particular scribe or a scribal circle. There was a broad exchange of experience on palaeographical questions and practical ways to answer them.

The title "The Tablets and Their Scribes" opens up the possibility for a wide variety of questions. As it turned out, however, the majority of the participants were primarily concerned with the question of dating tablets and assigning them to scribes.

In 1938 Hans Gustav Güterbock wrote that "our possession of texts about the Old Kingdom is due to the historical interest of the later Hittites. For the few texts about that period are probably all in late copies, i. e. those of the Empire period, at least according to their paleographic correspondence with the texts of this period." (Güterbock 1938: 97; original citation in German, translated by the author).

Fifteen years later, Heinrich Otten described the newly found Zukraši text as Old Hittite according to its language, and noted that the writing is closely set, but the ductus corresponds completely to Neo-Hittite forms (Otten 1953). He saw its value above all in the fact that this tablet fragment clearly came from an ancient Hittite layer, i. e. it was an old original, not a later copy.

The idea of the Old Hittite script only emerged slowly and with further new discoveries. There are indications that the idea originated with Güterbock (Klinger 2022: 263f.), but by the early 1960's it had become consensus. Hittite palaeography flourished, the sign forms became reliable dating criteria and young Hittitologists were primed on the dating criteria of writing. Nearly a quarter of a century after the launch of the Hittitology Portal Mainz we have almost forgotten that in the last millennium only very few people had access to photos and the original clay tablets and that the perception of Hittite cuneiform tablets and signs was shaped primarily by the autographs. Since the 1970s, a method of dating based on diagnostic sign-forms has been developed, culminating in the *Hethitisches Zeichenlexikon* (Rüster and Neu 1989) with the signs

tentatively arranged in chronological order. Efforts were made to obtain more precise datings (e. g. Starke 1985, Klinger 1996).

At that time, distinctive handwriting of individual scribes was not the main focus of palaeographic analysis. If my intuition is correct, and some remarks in the papers point to this, we are only slowly learning to recognize the individual scribe, even if some milestones have already been reached along the way (e. g. Gordin 2015). It is of course easier and probably necessary to orient oneself according to standard forms and to assess the deviations, but for a successful classification of manuscripts, we will have to learn to concentrate more on the individual characteristics of the signs and also use deep learning and AI to handle the large amounts of information required. It is no coincidence that in traditional forensic handwriting analysis, usually only one document is compared to others. We are dealing with a gigantic game of 'Memory'.

In his contribution to this volume, Yusuf Kıraç, the director of the Museum of Anatolian Civilizations in Ankara, discusses the history of the museum, which has the largest collection of Hittite clay tablets, and he pays tribute to the role of Hans Gustav Güterbock. In doing so, he also reminds us of the context in which Güterbock developed his ideas, and of the importance of the conservation and provision of the cuneiform texts by our colleagues in the museums.

1. Text basis

The selection of texts for the individual studies was based mainly on the criteria of content. The festival rituals, which are the subject of the HFR project, naturally represent a much larger group.

The *nuntarriyašḫa-* festival comprises around 200 text fragments, but Kryszeń confined himself to the 17 outline tablets. Each of these provides a complete overview of the festival and it is assumed that they are all originals and not copies, and can therefore be dated with greater certainty. Steitler uses the 16th day of the AN.DAḪ.ŠUM festival, which is heterogeneous with regard to content and palaeography, and Doğan-Alparslan examines the *ḫišuwa-* festival.

Görke devotes herself to the texts with passages in Palaic or the mention of Palaic gods in Old Script (OS) as well as the Ziparwa festivals within the itinerant state festivals of AN.DAḪ.ŠUM and *nuntarriyašḫa-*, some of which can be dated by the names of the scribes.

The 15 "Intake and Storage" records, a subset of the Palace-Temple Administrative Corpus (Burgin), the cult inventories (Cammarosano) as well as the oracle texts (Trameri) are of a completely different nature. These are usually written hastily and with less care.

Another group selected according to content are the surviving Hittite votive texts, mainly records of vows made by Queen Puduḫepa, which show her concern for the welfare of her family and the country (Schwemer).

Some ensembles of texts are defined by the circumstances of their discovery at excavation sites outside Ḫattuša, such as the text finds from the site of Büklükale on the

western Kızılırmak, which continue to come to light after the first text discovery there in 2009 (Weeden), or the 121 fragments from the "archive excavation" in Kayalıpınar (Lorenz and Rieken).

The 36 Middle Hittite texts from Maşat Höyük (Tapikka), examined by Leonard on the basis of photographs and 3D models, also come from outside Ḫattuša. This corpus consists of letters that my have been sent there from Ḫattuša or Šapinuwa.

The contribution by Soysal focuses on the important "Zukraši Text" mentioned above and, in addition to philological questions on the understanding of the text, also deals with the characteristics of Old Hittite texts.

The scope of Waal's contribution is cross-corpus in comparing the practice of writing Luwian hieroglyphs with writing the cuneiform script.

In the more technical investigations, Gordin uses the xml data of HFR as the basis for his stylometric experiments, and Müller uses 3D models of tablets with scribal names and the collection of photographs in the Mainz Photo Archive for the development of analytical methods.

2. Questions

Waal approaches the question of which writing habits were adopted by the Hittites along with the cuneiform script and which are of internal Anatolian origin by examining sealing practices and the use of determinatives.

Kryszeń's investigation of how the *nuntarriyašḫa-* festival changed over time focuses primarily on text dating. He uses the outline tablets, tablets written at the time of editing the text that were not copied, to determine the **relative chronology** of the **festival's development**. Steitler's focus is also on the palaeographic strata represented in the texts and the comparison of the **relative dating** of the texts with the aim of observing the **development of the festival** over time and, in particular, clarifying the changing role of the king and crown prince. Görke poses several questions concerning the two-part Palaic corpus: for the group of Old Hittite texts, she investigates whether one of the **scribes** of the **Palaic texts** also wrote **other Old Hittite** texts and, based on this, **how many scribes** we can assumed to have been active in the Old Hittite period. For the second group, written in New Script, she also searches for **scribes who wrote several** texts and attempts an **internal chronology**. The study by Doğan-Alparslan on the *ḫišuwa-* festival also focuses on chronological aspects of the writing, in particular the Middle Hittite fragments and their implications for the history of the text tradition.

The study by Burgin begins with an attempt to use palaeography to determine how many scribal hands were present in the administrative texts examined, and thus to estimate the **total number of scribes** in the administration. This approach is aimed more at **differentiating between handwritings**. Cammarosano's study of the cult inventories also focuses on the **question of authorship**.

Trameri searches for specific writing practices and writing habits in Hittite oracle tablets and under what circumstances handwritings with different appearances occur on oracle reports.

Schwemer asks whether the votive texts were written by **specialists** or by **scribes of the royal administration**.

Soysal discusses the archaic features and peculiarities of the Zukraši text after an intensive autopsy of this important Old Hittite manuscript.

Lorenz and Rieken's research on the Kayalıpınar texts goes beyond an attempt to identify scribal hands on the basis of visual appearance of the sign forms and determining the number of scribes. Their paper also addresses the question of **joining** tablet fragments on the basis of palaeographic and physical characteristics, the unity of the scattered archive and its function.

For the tablets from Büklükale, Weeden's aims to **date** of the tablets and **classify unusual sign-forms** (local inventions, localization of specific sign-forms).

Leonard examines the **chronological features** of the syllabary of the Maşat texts, finding some NS sign forms, and examining the signs of three scribes more carefully. However, considering the small basis of data, he refrains from ascribing anonymous tablets to any particular scribe.

Gordin experiments with the operationalization of the xml files of HFR to transform abstract writing habits into explorable latent features. Thes can be used to describe the proximity of texts and text groups for the purpose of identifying genre, authorship and textual traditions, especially on the basis of Luwian and Hurrian festival rituals.

Finally, Müller asks how handwritings can be distinguished using technical means, and which tools can be used to assist with palaeographic examinations.

3. Methods

Prior to the online publication of photographs on HPM, most Hittite cuneiform texts were only available in the form of hand-copies. For a long time, it has been common practice in Hittitology to reproduce the signs in the autographs as closely as possible to the original. Inevitably, however, copyists tend to typify the sign in both their conception of as well as rendering of the signs. This sign typification aids in dating the texts, which is considered perhaps the most important task of palaeography. However, it also artificially conceals individual differences in handwriting.

Since photos are now available for most of the texts on HPM, their use as a basis for handwriting comparison and join suggestions has gradually become established. The starting point for examining a document's handwriting is usually a comparison of the signs with established dating criteria and, in addition, individual observations of writing idiosyncrasies. Ideally, the examination includes an entire inventory of signs. But due to the great effort involved, this is only possible for small text ensembles, so a selection is usually made.

To simplify matters, groups of characters with similar design elements can also be described summarily (Kryszeń). The characterization of the signs can also be done by

a detailed description of the properties and peculiarities, as perceived by an experienced copyist (Schwemer).

Two contributions attempted to apply the method described by Yakubovich and Mouton (2023: 29–46). The procedure first classifies all the larger fragments by handwriting and then examines those with similar handwriting for further characteristics such as slanted verticals, use of space, shape and depth of column dividers, shape of the tablet, etc. In this way, it is often possible to show that the fragments with the same handwriting belonged to the same text series. This process alone orders the tablet series in distinct categories based on the different handwritings identified. Small fragments could be assigned to these. Parallel passages and colophons helped to confirm that two tablets could not belong to the same hand.

Burgin first tried to distinguish handwritings using a list of possible diagnostic signs. The failure of this method was demonstrated when he attempted to separate the handwritings based on the individual signs of a large number of texts of different genres. This was due to the arbitrary classification of variants as belonging to the same or to different handwritings. In a second attempt, he created complete character tables for each tablet of a small, thematically similar group. This resulted in more precise observations and comparable text passages, which had also proved helpful with Yakubovich and Mouton's approach.

Lorenz and Rieken also used this method to prepare their investigation, which should clarify the character of the find ensemble of 121 fragments from Kayalıpınar. First, as many fragments as possible should be joined, or at least their affiliation should be determined on the basis of writing characteristics. It proved difficult to find sign forms in small fragments that could be compared, and also the range of variation in the shapes of individual sign forms, so that the relevance of sign forms for or against a join remained uncertain.

Statements such as "signs useful for dating texts and the set of signs useful for distinguishing scribal hands are not the same" (Burgin) or "the sign forms relevant for the dating are not necessarily the same as those significant for identifying the handwriting" (Kryszeń) indicate that the analysis process is determined by the approach to dating through diagnostic signs. But the process of handwriting identification is much more complex, since both the signs and their features can vary (as showed the experience of Burgin). So, e. g., in one context a simple sign like BI consistently written with the same indentation of a horizontal wedge can be a distinguishing criterion, but within another context, the indentation of the upper and lower horizontal wedge can alternate.

Macroscopic analysis without digital methods for metric and microscopic examination limits the possibilities for identifying subtle differences between handwriting. But even with digital tools, the range of variation in the handwriting — even of one and the same scribe — can be an obstacle. Furthermore, it is often possible to identify fragments that share a significant number of handwriting and cursive writing characteristics. If these fragments are comparatively small, it is difficult to make a final decision as to whether they were written by the same hand, even if the sign forms and types on the respective fragments largely match.

Weeden argues for a distinction between cuneiform palaeography and material handwriting studies. From a systematic point of view, this is plausible. In practice, however, it should be considered that in a palaeographic database, all character forms should be available without pre-classification.

4. The case of Hieratic

The remarks above show that a digital, interoperable syllabary is needed for Hittitology. In order to look beyond our own discipline, Svenja A. Gülden was invited to speak about an Egyptological project that investigates cursive writing. The project *Altägyp-*

Fig. 1. AKU-PAL homepage (image courtesy of S. Gülden).

tische Kursivschriften. Digitale Paläographie und systematische Analyse des Hieratischen und der Kursivhieroglyphen (AKU-Projekt) is funded by the Union of the German Academies of Sciences and Humanities and is also located at the Academy of Sciences and Literature | Mainz (Gülden et al. 2020).

In her explanation of the objects and aims of the project, Gülden noted that ancient Egyptian has several cursive scripts. Of these, cursive hieroglyphs and hieratic were in use from time immemorial and represented the handwritten variant of monumental hieroglyphs. In the first millennium BC, highly abbreviated variants were developed in addition to these, namely cursive hieratic and demotic. Each of these scripts has its own sign repertoire, which differs from that of hieroglyphics.

The aim of the project is to set up a sign repertoire of Hieratic and to store digitized hieratograms in a dynamic repository. The annotated metadata allows the characters to be selected according to dating, place of discovery, and other criteria. The digitized Hieratograms in AKU-PAL – the online palaeography of Hieratic – have been available on an open-access platform since 2022 (https://aku-pal.uni-mainz.de). The AKU project stores the digitized files in SVG 1.1 (vector-based) and TIF 6.0 (pixel-based). Both data formats are suitable for digital analysis and archiving. In addition to the digitization of printed palaeographs, text photographs are digitized in high resolution so that the individual strokes can be accurately recognized and traced. This opens up the potential
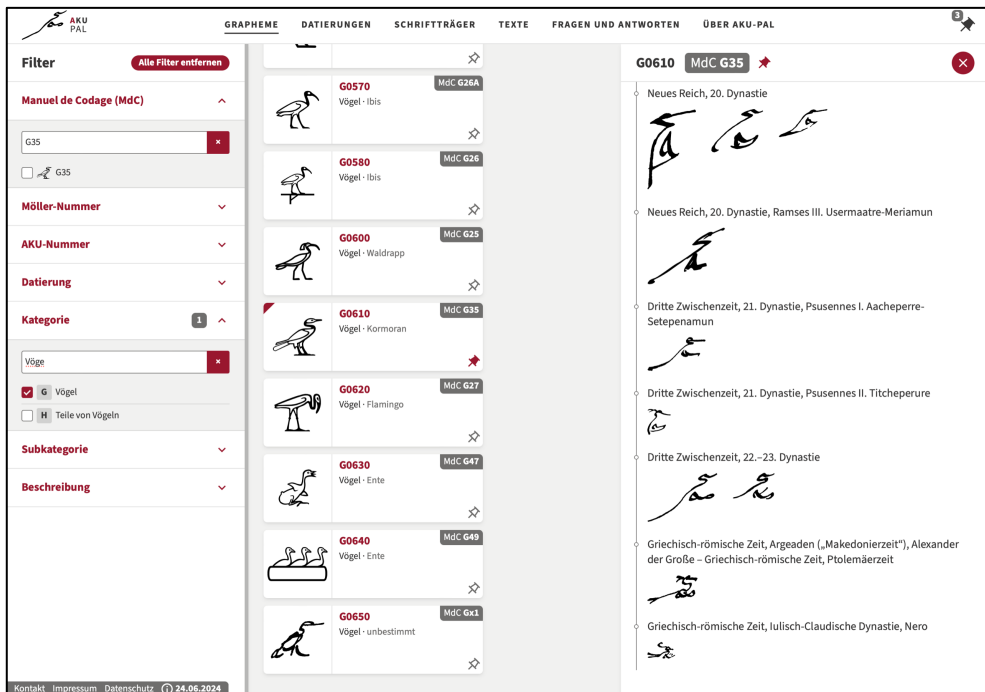

Fig.2. An exemplary search for the cormorant (with the phonetic value Aq), the logo of the AKU project (image courtesy of S. Gülden).

for new insights, but also makes the procedure very labor intensive. Therefore, only certain text groups can be incorporated, which are selected according to strict criteria. These include dating according to non-palaeographic information, type of writing material (much broader than with clay tablets), the genre. The texts must also be published, edited and accessible for the creation of high-resolution photos.

Another goal of the project is digital analysis. For this purpose, experiments were carried out with a tool for visualizing cultural collections (VIKUS) (https://vikusviewer. fh-potsdam.de). This web tool not only allows for selected objects to be displayed in a timeline, but also the option of displaying visually similar image data in groups, which is particularly interesting for the shape analysis of the hieratograms. The similarity calculation in this view is based on a pre-trained model of image data from ImageNet (https://image-net.org/) (Gerhards and Konrad 2022). For the visualization, the VIKUS Viewer uses an algorithm to sort the image data according to similarity. This makes it possible to visualize a large amount of data with little computing power; such analytical instruments could also be implemented for cuneiform research.

5. Requirements for digital palaeography

This shows the close connection between content and palaeographic issues; therefore, a comprehensive palaeography cannot be a self-contained, authoritative and monumental work, but, in the modern sense, only a complex, extensive work tool that provides signs and sign forms (enriched with metadata like source and date) enables visual comparisons and, in addition, allows for geometric and statistical categorizations that flexibly enable and offer content-based interpretations. To do this, enormous amounts of data must be considered, and the analytical basis of interpretations must at all times be comprehensible and capable of being expanded and modified by new material.

Bibliography

Gerhards, Simone and Tobias Konrad

2022   Von Bildern und Bienen – Methodenreflexionen zur digitalen paläographischen Analyse des Hieratischen. In: Svenja A. Gülden, Tobias Konrad, and Ursula Verhoeven (eds.), *Ägyptologische „Binsen"-Weisheiten IV. Hieratisch des Neuen Reiches: Akteure, Formen und Funktionen. Akten der internationalen Tagung in der Akademie der Wissenschaften und der Literatur | Mainz im Dezember 2019*. Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse – Einzelveröffentlichungen 17. Stuttgart: Franz Steiner Verlag, 183–219. http://doi.org/10.25358/openscience-9257.

Gordin, Shai

2015   *Hittite Scribal Circles. Scholarly Tradition and Writing Habits*. StBoT 59. Wiesbaden: Harrassowitz.

Gülden, Svenja A.

2022   Materialität, Textsorten, Schreiberhände – eine experimentelle digitale Ana-
            lyse zu Schriftzeichen der 18. Dynastie. In: Svenja A. Gülden, Tobias Kon-
            rad, and Ursula Verhoeven (eds.), *Ägyptologische „Binsen"-Weisheiten IV.*
            Hieratisch des Neuen Reiches: Akteure, Formen und Funktionen. Akten der
            internationalen Tagung in der Akademie der Wissenschaften und der
            Literatur | Mainz im Dezember 2019. Abhandlungen der Geistes- und
            Sozialwissenschaftlichen Klasse – Einzelveröffentlichungen 17. Stuttgart:
            Franz Steiner Verlag, 221–78. http://doi.org/10.25358/openscience-9264.

Gülden, Svenja A., Celia Krause, and Ursula Verhoeven.

2020   Digital Palaeography of Hieratic. In: Vanessa Davies and Dimitri Laboury
            (eds.), *The Oxford Handbook of Egyptian Epigraphy and Paleography.* Oxford:
            Oxford University Press, 634–46. https://doi.org/10.1093/oxfordhb/97801906
            04653.013.42.

Güterbock, Hans Gustav

1938   Die historische Tradition und ihre literarische Gestaltung bei Babyloniern
            und Hethitern bis 1200 (2. Teil: Hethiter). *ZA* 44: 45–149.

Klinger, Jörg

1996   *Untersuchungen zur Rekonstruktion der hattischen Kultschicht.* StBoT 37.
            Wiesbaden: Harrassowitz.

2022   Zu den Anfängen der hethitischen Überlieferung überhaupt und zur Methode
            der paläographischen Textdatierung. In: Eva Cancik-Kirschbaum and Ingo
            Schrakamp (eds.), *Transfer, Adaption und Neukonfigurierung von Schrift- und*
            Sprachwissen im Alten Orient. Episteme in Bewegung 25. Wiesbaden: Harras-
            sowitz, 255–340.

Otten, Heinrich

1953   Vorläufiger Bericht über die Ausgrabungen in Boğazköy im Jahre 1952. Die
            inschriftlichen Funde. *MDOG* 86: 59–64.

Rüster, Christel and Erich Neu

1989   *Hethitisches Zeichenlexikon. Inventar und Interpretation der Keilschrift-*
            zeichen aus den Boğazköy-Texten. StBoTB 2. Wiesbaden: Harrassowitz.

Starke, Frank

1985   *Die keilschrift-luwischen Texte in Umschrift.* StBoT 30. Wiesbaden: Harras-
            sowitz.

Yakubovich, Ilya and Alice Mouton

2023   *Luwili. Hittite-Luwian Ritual Texts Attributed to Puriyanni, Kuwatalla and*
            Šilalluḫi (CTH 758–763). Volume II: Discussion and Glossary. StBoT 72,2.
            Wiesbaden: Harrassowitz.