

# Beyond Modern Science I:

Basic Terms of Ancient Scholarly  
Knowledge and Practices

International Conference



**January 9 to 11, 2020**

**Erbacher Hof**

Grebenstr. 24-26

55116 Mainz

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## **Basic Terms of Ancient Scholarly Knowledge and Practices**

### **International Conference**

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#### **Erbacher Hof**

Grebenstr. 24-26  
55116 Mainz

#### Organisation:

Prof. Dr. Annette Imhausen  
Historisches Seminar /  
AG Wissenschaftsgeschichte,  
Frankfurt University

Prof. Dr. Tanja Pommerening  
Institute of Ancient Studies,  
Egyptology,  
Mainz University

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#### More information:

<https://www.aegyptologie.uni-mainz.de/beyond-modern-science-basic-terms/>

## **Basic Terms of Ancient Scholarly Knowledge and Practices**

Until today, the historiography of sciences of Ancient Egypt and the Ancient Near East focuses primarily on astronomy, mathematics and medicine as scientific disciplines. These choices were based on a modern view of the concept and categories of science developed by historians of science in the late 19th and early 20th centuries. However, more recent researchers of the pre-Greek history of science have established that the concepts and categories of scholarship within individual disciplines are specific to individual cultures and change over time.

As a consequence, it is necessary to establish categories and concepts of science in Ancient Egypt and the Ancient Near East using a culture-specific perspective. Our conference focuses on concepts and contexts of epistemological terms used in Egyptian and Ancient Near Eastern texts. In addition, the Egyptian and Mesopotamian scholarly terminology will be compared with that of Greek, Latin, Chinese and Sanskrit texts. The individual lectures will examine the lexical and semantic field of terms connected with knowledge and practices of scholars in these cultures.

The aim of the conference is to exceed the defined semantics of the individual lexical terms and to determine previously disregarded scholarly disciplines by rejecting a pre-classification, that was based on modern scientific disciplines.

# Beyond Modern Science I: Program

Thursday, January 9, 2020

9:00-  
9:30      Welcome

9:30-  
10:30    Introduction

Prof. Dr. Tanja  
Pommerening &  
Prof. Dr. Annette  
Imhausen

10:30-  
11:00    *Coffee Break*

## Section I: Ancient Egypt

11:00-  
11:45    *rh* and *hm* – “to know”  
and “not to know”. But  
what does this mean?

Prof. Dr. Friedhelm  
Hoffmann (München)

12:00-  
13:30    *Lunch*

13:30-  
14:15    Cognitive verbs and their  
distribution in ancient  
Egyptian scientific texts

Prof. Dr. Hans-Werner  
Fischer-Elfert (Leipzig)

14:20-  
15:05    “Creative speech” and  
“knowledge in the heart” -  
The terms *hw* and *sb* in  
ancient Egyptian texts

Dr. Nadine Gräßler  
(Mainz)

15:05-  
15:30 *Coffee Break*

15:30-  
16:15 From Artistry to Erudition.  
The meaning of the  
verb *ḥmw* in Egyptian Dr. Stefan Baumann  
(Trier)

## Section II: India

16:20-  
17:05 Śastra and jyotiḥśāstra:  
the “science of light” in  
Sanskrit learning Prof. Dr. Kim Plofker  
(New York)

17:10-  
17:55 “Showing a connexion”,  
some reflexions on the  
use of *yukti* by Śaṅkara  
Vāriyar (fl. 1540) in  
relation to other attested  
use of this term in me-  
dical and philosophical  
texts in Sanskrit Dr. Agathe Keller (Paris)

## Friday, January 10, 2020

### Section III: Mesopotamia

9:00-  
9:45 *nēpešu* and the heart of  
Mesopotamian rational  
practices Prof. Dr. Jim Ritter (Paris)

9:50-  
10:35 On cubs, hands and  
similar legal terms in  
Mesopotamia Prof. Dr. Guido Pfeifer &  
Steffen Jauß, B. A.  
(Frankfurt)

10:35-  
11:00 *Coffee Break*

|                 |   |  |
|-----------------|---|--|
| 11:00-<br>11:45 | <i>nēmequ</i> & co: Akkadian terms for wisdom and knowledge   | Dr. Ulrike Steinert (Mainz)                |
| 11:45-<br>13:30 | <i>Lunch</i>  |  |
| 13:30-<br>14:15 | General terms to express knowledge in the Ancient Near East   | Prof. Dr. Nils Heeßel (Marburg)            |
| 14:20-<br>15:05 | “Sign” and “(its) interpretation” – the Akkadian terms <i>ittu</i> and <i>pišru</i> in scholarly texts from Mesopotamia | Dr. Daliah Bawanypeck (Frankfurt)          |
| 15:05-<br>15:30 | <i>Coffee Break</i>   |  |
| 15:30-<br>16:15 | Seeing, watching, measuring: observational terms in Mesopotamian scholarship  | Prof. Dr. Mathieu Ossendrijver (FU Berlin) |

## Saturday, January 11, 2020

### Section IV: Ancient Greece and Rome

|                |   |                                  |
|----------------|---|----------------------------------|
| 9:00-<br>9:45  | The Notion of <i>Sophia</i> beyond Philosophy | Dr. Chiara Ferella (Mainz)       |
| 9:50-<br>10:35 | ἐπιστήμη ( <i>episteme</i> )                  | Prof. Dr. Jochen Althoff (Mainz) |

10:35-  
11:00 *Coffee Break*

11:00-  
11:45 The Art of Science?  
Origins and usages of the  
terms *ars* and *scientia* in  
Latin technical texts PD Dr. Annemarie Ambühl  
(Mainz)

11:45-  
13:30 *Lunch*

## Section V: China

13:30-  
14:15 How gewu zhizhi /  
格物致知 means  
“Wissenschaft”?  
A tri-lingual hermeneutic  
approach to translation of  
basic concepts of  
philosophy Prof. Dr. Ole Döring  
(FU Berlin)

14:15 Final discussion

14:45 *Coffee Break*

from 15:15 Round Table for  
Publication (only for speakers)



## Notes

Friedhelm Hoffmann (München)

***rh* and *hm* – “to know” and “not to know”.  
But what does this mean?**

The study of the usage and meanings of *rh* and *hm* – the approximate sense of which is “to know” and “not to know” respectively – shows certain aspects which are unexpected from the perspective of the German language: *rh*, e.g., actually does imply power, but unknowability does the same; “to know” means processing information through the intellect – but the Egyptians basically denied that foreign peoples possessed this; “to know” is an active process, but “not to know” can also be active in the sense of deliberately ignoring something. While *rh*, in the course of time, develops into an auxiliary verb “to be able to”, *hm* completely dies out.

The large number of attestations makes a comprehensive semantic analysis impossible. But in addition to the *Wb* whose entries on *rh* and *hm* are structured according to that which one knows, I also examine the subject, i.e. the one who knows. I do not deal with derivatives of either verb, in particular because etymological meanings are different from the connotations of the word in different periods.

## Notes

Hans-Werner Fischer-Elfert (Leipzig)

**Cognitive verbs and their distribution in ancient  
Egyptian scientific texts**

In order to diagnose and categorize either a medical problem or an astronomical phenomenon, to provide prognostics about and the result of future events etc., a basic set of verbs of perception and cognition was used in Egyptian scientific discourse. One of the main issues about their proper understanding is to differentiate between their intentional and non-intentional meanings and to look very closely at their distribution over the texts. It is the purpose of this paper to propose some preliminary observations on these issues and to identify their mutual semantic relationship to one another.

## Notes

Nadine Gräßler (Mainz)

**“Creative speech” and “knowledge in the heart” –  
The terms *ḥw* and *sj* in ancient Egyptian texts**

In Egyptological literature the terms *ḥw* and *sj* are regularly translated “(creative) utterance” (*ḥw*) and “perception/knowledge” (*sj*). Both are often, but not exclusively, documented in religious contexts and are therefore strongly tied with domains of divine perception/knowledge, especially with the creator god in the field of cosmogony. They occur often as complementary pair. Furthermore, there exist personifications of these terms which can also be depicted in temple reliefs.

This paper will explore mainly the textual primary sources for both terms with the aim to identify the main contexts they are involved and to verify their lexical range of meaning(s). Finally, it will be demonstrated if and in which way they are related to ancient Egyptian fields of scholarship and (divine) knowledge.

## Notes

Stefan Baumann (Trier)

**From Artistry to Erudition.  
The meaning of the verb *ḥmw* in Egyptian**

Among all crafts the ancient Egyptians mastered, stone working is generally considered the most emblematic of this civilization. This view is rooted in the sheer number of monuments and objects crafted out of the wide range of (precious) stones available in the Nile valley. Even before the emergence of large-scale architecture in the Old Kingdom, craftsmen transformed shapeless, bulky stones into intricate and precious objects. Given the high level of expertise and the time commitment required to craft stone vessels, it is evident that such objects were luxury products. These reasons may also explain why the activity “to drill stone/to craft a stone vessel”, expressed by the verb *ḥmi* in the Old Kingdom, later became the epitome of artisanal activities. Thus, the verb underwent a semantic shift so that by the Middle Kingdom it was used in a more abstract way, as a word for creating different kinds of arts and craft. Nouns that are etymologically related to this verb were also abstracted and referred to craftsmanship or to the professions and persons, who created the objects. At a further stage of abstraction, words related to *ḥmi* were semantically no more bound to the virtuosity of creating by hand. Instead, they referred to a wide spectrum of knowledge and scholarship. By presenting hieroglyphic sources from different periods, this paper will trace the semantic history of the verb *ḥmi/ḥmw* and its related forms from the first attestations in the Old Kingdom until the Graeco-Roman period.



## Notes

Kim Plofker (New York)

***Śāstra* and *jyotiḥśāstra*:  
the 'science of light' in Sanskrit learning**

This talk explores the role of Sanskrit *jyotiḥśāstra*, the study of (celestial) lights or astral sciences, with respect to definitions of "knowledge".

We examine canonical practices in this *śāstra* or scholarly discipline, and compare its epistemic authority with that of astral/mathematical sciences elsewhere.

## Notes

Agathe Keller (Paris)

**“Showing a connexion”,  
some reflexions on the use of *yukti* by Śaṅkara  
Vāriyar (fl. 1540) in relation to other attested use of  
this term in medical and philosophical texts in  
Sanskrit**

The last thirty years has seen a historical turn in Indology, which implies the examination of emic categories in Sanskrit scholarly texts. In this paper, the work done on words concerned with ideas of “scholarly knowledge” will be presented before turning to one emic category for “proof” or “reasoning”, *yukti*. This term is known to have been used in medical, philosophical and religious texts. I will confront its usage and understanding by Śaṅkara Vāriyar (fl. 1540) in his mathematical commentary on the canonical arithmetical treatise the *Līlāvātī* (12th cent), to those attested in other realms of sanskrit lore.

## Notes

Jim Ritter (Paris)

***nēpešu* and the heart of Mesopotamian  
rational practices**

We shall follow the use of the term *nēpešu* in Old Babylonian and later texts as a tool to identify, trace the contours of, and analyze the functioning of those intellectual domains which are best understood as representing a class of rational practice in Mesopotamian society. Both the synchronic and diachronic aspects will be drawn on as well as the existence of a common grammatical structure in these texts. It will be argued that “rational practice” rather than the fraught word “science” is the better term to describe those domains singled out by the word *nēpešu*.

## Notes

Guido Pfeifer & Steffen Jauß (Frankfurt)

## **On cubs, hands and similar legal terms in Mesopotamia**

Mesopotamian legal terminology cannot be thought apart from its specific literary contexts, i.e. documents as legal records, law collections etc. Therefore, a term as e.g. *dīnu* would have to be examined within the whole range of its written records to come close to the specific semantics due to the particular format of the record. With respect to the number of evidence of *dīnu*, this does not seem practicable.

Alternatively, expressions which are delivered by legal lexical lists refer to clear specific semantics, even though their etymology (if traceable) might refer to an unspecific meaning. Examples are: sum. *máš* – akkad. *urūṣu/paḥādu/šibtu*; sum. *šu.du<sub>8</sub>.a* – akkad. *qātu* (?), *qatātu*. Besides the analysis of the single term, the functions of lexical lists – among other as specialized dictionaries – have to be discussed. The same might perhaps hold true for legal phraseology which is exclusively applied in specific contexts (e.g. wills).



## Notes

Ulrike Steinert (Mainz)

***nēmequ* & co:**

**Akkadian terms for wisdom and knowledge**

The most common term in Akkadian cuneiform texts from the second and first millennium BCE to refer to different realms of knowledge (including scholarly knowledge) is *nēmequ*, lit. “wisdom”, derived from the verb *emēqu* “to be wise”. There are a number of quasi synonymous terms such as *eršūtu* “wisdom”, *hasīsu* “wisdom, comprehension” and *uznu* “wisdom, understanding”, the latter two of which designate sensory organs and their faculties in their primary meaning (“(aperture of the) ear”; “hearing”). Beside the wealth of attested words for “knowledge as wisdom” (*Weisheitswissen*), it is further striking that the relevant words are quite broad in meaning, including both theoretical knowledge (concepts, ideas) and practical knowledge, such as the know-how of skilled craftsmen. But cultural traditions forming the basis of civilization are likewise part of this *Weisheitswissen*, which moreover, often has a divine origin. The presentation will provide an overview of the significant contexts and usages of the Akkadian terms for “knowledge as wisdom”, including their connection to branches of Mesopotamian scholarly learning and practice.

## Notes

Nils Heeßel (Marburg)

## **General terms to express knowledge in the Ancient Near East**

According to the *communis opinio* in Ancient Near Eastern Studies, general terms to express knowledge similar to those from classical antiquity did not exist in the Ancient Near East. The unsuccessful search for “scientific definitions” and clearly defined technical terms in Ancient Near Eastern texts was disappointing for scholars who ultimately expected a scientific corpus comparable to that of ancient Greece.

At the same time, this search for terms *à la grecque* obscured the view of Sumerian and Akkadian terms, which describe knowledge in a generalizing manner and have so far barely been studied. My contribution will look at examples of these generalizing terms to describe knowledge, like for example Akkadian *iḫzu* and Sumerian *níg-zu*, and analyse their meaning from an emic point of view. In addition, I will discuss problems of their appropriate translation and modern classification.

## Notes

Daliah Bawanypeck (Frankfurt)

**“Sign” and “(its) interpretation” –  
the Akkadian terms *ittu* and *pišru* in scholarly texts  
from Mesopotamia**

The Mesopotamian world conception was based on the assumption that humanity’s future was determined by gods who expressed their will by means of natural phenomena that could be observed in the material world. These ominous signs were regarded as a divine warning. If they were correctly interpreted, threatening calamity could be averted by appropriate actions.

The phenomena were called *ittu* (Sumerian *giskim*), the interpretation of the phenomenon was referred to with the term *pišru*, a derivation of the verbal stem *pašāru*. In the reports of Neo-Assyrian scholars concerning the interpretation of omens, we often find the phrase *pišeršu* “its interpretation”.

The paper will present an overview of the meaning, use and function of *ittu* and *pišru* in the texts of Mesopotamian scholars.

## Notes

Mathieu Ossendrijver (FU Berlin)

**Seeing, watching, measuring:  
observational terms in Mesopotamian scholarship**

Mesopotamian scholars used several different Akkadian terms in order to express the visual perception of phenomena and knowledge. The most common ones are related to the verbs *amāru*, of which the basic meaning is “to see”, and *našāru*, with a basic meaning “to watch”. In this paper, the usage of these terms in astronomical, mathematical and other scholarly texts is explored in order to better understand the ways in which visual perception was conceptualised in Mesopotamian scholarship. In this connection a problematic term in the Babylonian astronomical diaries that may derive from the verb *mašāḥu*, “to measure”, will also be discussed.



## Notes

Chiara Ferella (Mainz)

## The Notion of *Sophia* beyond Philosophy

The Greek word *sophia* is usually translated as “wisdom”, and generally related to philosophical knowledge, meaning abstract theoretical thinking. However, in ancient authors (seventh to fifth century BCE), it is applied to different kinds of handicrafts and arts. The term is derived from the adjective *sophos*, which designates supreme skills in one field. It denotes different things and skills: for instance, the skill of craftsmen, the poetic craft, the practical wisdom of a steersman or a medicine man, the political know-how; and finally, abstract theoretical speculation. Yet in each of these fields of application, *sophia* always indicates an exceptional wisdom, which is bestowed by the gods and endows its possessor with cultural authority.

In order to explore whether there could be common traits characterizing the diverse kinds of *sophiai*, in my paper I will investigate the various fields of application of the term by ancient authors before and beyond the philosophy of Plato and Aristotle. Specifically, I will analyze significant occurrences of *sophia/sophos* in the texts of the lyric poets, especially of Solon, Pindar, Simonides, Bacchilydes and Theognis; of the early thinkers such as Pythagoras, Xenophanes and Heraclitus and, finally, of the tragic poets (above all Aeschylus).

## Notes

Jochen Althoff (Mainz)

## “ἐπιστήμη (episteme)”

The Greek term *episteme* (ἐπιστήμη) has been developed in the 5th century BC. It is derived from the older verb *epistasthai* (ἐπίστασθαι), whose basic meaning once was “to stop (considering, observing something)”. But Homer already uses it in the sense of “to know to do sth., to be able to do sth”. After Homer (from the 5th cent. BC onwards: Herodotus, Plato, Aristotle) it means “to know as a fact, to know for certain”.

The tragic poets Sophocles and Euripides seem to be the first to use the noun *episteme* in the broader sense of “acquaintance with a matter, understanding, skill” (e.g. in using a bow or swimming). The term is not securely attested in the Presocratic philosophers, although some later authors use it with regard to, e.g., the Pythagoreans. Democritus, traditionally also labelled as “Presocratic” but actually a contemporary of Socrates, certainly uses it in fr. 68 B 181 in the sense of “knowledge”. It was Plato (*Respublica* 477 B and elsewhere) and his student Aristotle (*Analyt. post.* 88 b 30; *Nicom. Eth.* 1139 b 18 etc.) who developed the term to stand for “abstract, scientific knowledge”, comparing it with other forms of knowledge: *doxa* (“opinion”), *empeiria* (“practical skill”) or *techne* (“art, craft”), and integrating the term into a broader philosophical context. Especially Plato’s theory of ideas forms an important background for understanding the term.

The paper will, therefore, focus on Plato and Aristotle and try to work out the different meanings in those semantic and philosophical contexts.

## Notes

Annemarie Ambühl (Mainz)

**The Art of Science?  
Origins and usages of the terms *ars* and *scientia* in  
Latin technical texts**

The terms “art/the arts” and “science” are omnipresent in modern languages. Their Latin roots *ars* and *scientia* have regularly been used in scholarly contexts at least since Late Antiquity and the Middle Ages, sometimes combined as *ars scientiae* or *scientia artis*. The paper looks beyond these (apparently) familiar meanings in order to investigate the origins of both terms in Latin texts from classical Antiquity. Special emphasis will be placed on the evolving theoretical definitions and practical applications of the terms, not only in handbooks of rhetoric but also in technical treatises of various kinds, among others by Cicero, Horace, and Quintilian.

## Notes

Ole Döring (FU Berlin)

**How gewu zhizhi / 格物致知 means “Wissenschaft”?**  
**A tri-lingual hermeneutic approach to translation of**  
**basic concepts of philosophy.**

Gewu zhizhi / 格物致知 is a key concept in both classical and neo-classical Chinese philosophy that informs the practical-epistemic program of holistic cultivation of a person. It marks the deliberate onset of reflection, within a teleological method that mobilizes and aligns knowledge(s) for individual education, common wealth and equilibrium for the political sphere.

In this presentation, I will approach 格物致知 in a perspective of philosophy of culture, language and science, to explore basic semantic, methodological and translational challenges in cross-cultural philosophical/epistemological discourse. I will engage a philosophical reading of the original textual setting, exploring the immediate context of the “Great Learning” (Daxue) and its canonical sibling, the “Measure Means” (Zhongyong), in a hermeneutic effort, to make it “speak to us” in view of its original purpose.

Some examples will illustrate the trialogic interaction of modern Chinese, German and English, as different and hopefully mutually supporting auxiliary measures to reconstruct basic terms such as 格物致知 for the benefit of contemporary enlightenment, with some reflection on the history of the related scholarly debates.



## Notes

## Location of hotel and conference venue





