

# State Authority, Administrative Structures and Its Reflection on Coinage

# 57.517 [VO-W] [ISL W]

Lecturer: Prof. Dr. Stefan Heidemann Bi-Weekly, Wednesday, 4-6 pm CET

Webinar classroom: <a href="https://webconf.vc.dfn.de/numismatics/">https://webconf.vc.dfn.de/numismatics/</a>

Dates: Oct. 31, Nov. 14, Nov. 28, Dec. 5, Dec. 19, Jan. 9., Jan. 23

## Why Coins and Why Administration?

For the period prior to the fifteenth century, historians of Islamic societies have few primary documents or archives at hand, and even less for the first three centuries of the Empire. Most documents are coming from Egypt and more and more are discovered in Khurāsān. But for the rest of the early Islamic world these documents are largely missing. Islamic coins are the most prolific epigraphic sources for pre-1500 history in the Middle East. Nevertheless, their potential for understanding history is often neglected. Islamic coins as bearers of texts – there can be up to 150 words on one coin – are unique in the history of civilization. They offer the often needed primary independent evidence for administrative practices and state authority produced in the course of events. Their design includes numerous hints, which have to be decoded. The coin is able to serve different historiographic fields such as political, economic, industrial, social and legal history as well as Islamic art and material culture. As groups, coins constitute a source of their own – a sequence of changing texts generated from coins over the decades from a single mint can serve as narrative for local and imperial history.

## What Does the Webinar Offer?

While this course is not an introductory course in numismatics, it is nevertheless designed to introduce historians and archaeologists to the main issues of working with Islamic coins and to answer questions on state authority and administration based on coins and coin sequences.

The Webinar explores the different dimensions of the coin as source for state authority and administration. The goal is to learn to exploit coinage for historical research within historical Islamic studies.

#### Topics are

- Terms and Terminology of Coins and Coinage
- Coin Design and Its Functions
- Legal Context of Coinage and Contracts in the Middle East

- The Social Function of Money
- The Administrative History of Coin Production in the Islamic Empire
- Who are the People Named on the Coins and Why?
- Comparison Between Coinage and Narrative History: Case Studies

#### **Islamic Material Culture**

The Universität Bonn (Bethany Walker), the Ludwig-Maximilians-Universität in Munich (Andreas Kaplony), New York University (Abigale Balbale), and Universität Hamburg (Stefan Heidemann) are cooperating in setting up a series of webinars in Archaeology of the Middle East, Arabic Papyrology, Islamic Arts and Material Culture, and Numismatics of the Middle East.

# Prerequisites for participation

Spoken and written proficiency in English language. The course is open to all advanced students in B.A., M.A., and PhD programs of Islamic studies, historians, art historians, and archaeologists of the Middle East. All students need a computer, reliable internet access, and a headset. In a short personal Skype interview in early October 2018, we will check whether all technical assets are working. Students from Hamburg have to sign up in the campus system 'Stine' and to contact Stefan Heidemann as early as possible to register and get the necessary introduction into the technology. Students from other universities than Universität Hamburg are welcome and have to apply with a short CV and a motivation letter in English. The applications should be sent to Prof. Stefan Heidemann (stefan.heidemann@uni-hamburg.de) until October 14, 2018. Preference is given to students from universities within the network of the webinar initiative "Islamic Material Culture". Interviews will be held until October 27, 2018.

# Oct. 31, 2018 - Introduction: Terms and Terminology

What is a coin? Terminology and description of coins; different forms of coin production; organization of a mint; technology of a mass product. This is just a brief introduction into the basics of this source. For those who look for the first time at coins form a scholarly point of view, they are advised to study the chapters of Grierson, to be familiar with some basic concepts, so that we can fast move toward analysing the source for the purposes of a historian.

Grierson, Philip, Numismatics. London et al. 1975, pp. 95-120 ("The Making of a Coin").

## Additional literature:

Ibid. Chapter 2 ("The Western Tradition").

Ibid. Chapter 3 ("The Eastern Tradition").

American Numismatic Society: "Introduction to Numismatic Terms and Methods." Available online <a href="http://www.numismatics.org/Seminar/TermsMethods">http://www.numismatics.org/Seminar/TermsMethods</a> (10/10/2018).

# Nov. 14, 2018 – Legal Concepts of Money and Its Social Function

Two quite difficult topics will be addressed in this unit, as prerequisite for understanding coins as a source for administration and state authority. We have first to address basic ideas on the legal concepts of money, and its social function. Both influence the design of coinage. While the legal concepts are specific to the Islamic empire, the social function is not. Cipolla's short essay volume is still a classic for understanding pre-modern monetary systems. For the understanding of pre-modern economy in general, Crone's work had become a classic.

Heidemann, Stefan, "Unislamic Taxes and an Unislamic Monetary System in Seljuq Baghdad." In: Ismail Safa Üstün (ed.), Islam Medeniyatinde Bağdat (Medinetü's-Selām) Uluslararasi Sempozyum — International Symposium on Baghdad (Madinat al-Salam) in the Islamic Civilization (M. Ü. Ilahiyat Fakültesi Vakfı Yayınları 246). Istanbul 2011, pp. 493-506.

Brunschvig, R., "Conceptions monétaires chez les juristes musulmanes (VIIIe-XIIIe siécles)." In: *Arabica* 14 (1967), pp. 113-143.

### *For the general understanding of pre-modern money and economy:*

Cipolla, Carlo M., *Money, Prices and Civilization in the Mediterranean World*, Princeton 1956. [Important work for a general understanding of pre-modern coinages].

Crone, Patricia, *Pre-Industrial Societies*. *Anatomy of the Pre-Modern World*. 2<sup>nd</sup> ed., Oxford 2003. [Important for the understanding of pre-modern economies].

Schultz, Warren, "'It Has No Root Among Any Community That Believes in Revealed Religion, Nor Legal Foundation for Its Implementation': Placing al-Maqrīzī's Comments on Money in a Wider Context." In: *Mamlūk Studies Review* 7/2 (2003), pp. 169-181.

# Nov. 28, 2018 – The Function of Design for Coins

The general function of design in circulation is also a human condition going beyond one culture. Gottfried wrote a book on aesthetics and the rhetoric of money. While this book is only in German, the gust of it is available in English in an article.

- Gabriel, Gottfried, "Aesthetics and Political Iconography of Money." In: Udo J. Hebel Christoph Wagner (eds.), *Pictorial Cultures and Political Iconographies*. Berlin 2011, pp. 418-428.
- Bacharach, Jere, "Thoughts about Pennies and other Monies." In: MESA Bulletin 35 (2001), pp. 2-14.
- Bacharach, Jere, "Material Evidence and Narrative Sources: Teaching and Studying Numismatic Evidence." In: Daniellea Talmon-Heller Katia Cytryn-Silverman (eds.), *Material Evidence and Narrative Sources*. *Interdisciplinary Studies of the History of the Muslim Middle East*. Leiden 2013, pp. 17-29. [Good readable introduction into the topic].
- Heidemann, Stefan, "Calligraphy on Islamic Coins." In: Jürgen Wasim Frembgen (ed.), *The Aura of Alif. The Art of Writing in Islam*. Munich et al. 2010, pp. 161-172. [Translation of the German: "Kalligraphie auf islamischen Münzen." In: *Die Aura des Alif. Schriftkunst im Islam*].

#### *Further literature on that topic:*

- Ilisch, Lutz, "Reichswährung und Regionalwährung nach der Münzreform 'Abd Al-Maliks im islamischen Osten." In: Lorenz Korn Eva Orthmann Florian Schwarz (eds.), *Die Grenzen der Welt. Arabica et Iranica ad honorem Heinz Gaube*. Wiesbaden 2008, pp. 167-179.
- Heidemann, Stefan, "The Evolving Representation of the Early Islamic Empire and Its Religion on Coin Imagery." In:

  Angelika Neuwirth Nicolai Sinai Michael Marx (eds.), *The Qur'an in Context. Historical and Literary Investigations into the Qur'anic Milieu* (Text and Studies on the Qur'an 6). Leiden 2010, pp. 149-195.

Gabriel, Gottfried, Ästhetik und Rhetorik des Geldes. Stuttgart-Bad Cannstatt 2002.

## Dec. 5, 2018 – How to Read a Coin? Its Vocabulary.

Islamic Coins are bearers of text. We know about the names of the rulers, and the hierarchy of rulers the coinage. We also now about some religious inscription. But in order to determine the administrative and the political structures we have to get familiar with the standard design and its meaningful additions. We look at the administrative vocabulary used on coinage. There is not yet good literature on that topic, therefore I advise to read the article in the New Cambridge History of Islam as an introduction.

Heidemann, Stefan, "Numismatics – Coins and Coin Circulation from the 7<sup>th</sup> to the 11<sup>th</sup> Century." In: Chase Robinson (ed.), *The New Cambridge History of Islam, Volume 1: The Formation of the Islamic World, Sixth to Eleventh Centuries.* Cambridge 2010, pp. 648-663, 775-779, pl. 16.1-16.41.

## **Dec. 19, 2018 – Centralization and Local Production**

In the production of precious metal coinage we see phases of centralization and decentralisation.

We have to distinguish two approaches. The centralization of production of coinage, which can be analysed in certain features on the coins itself. Secondly, we have the centralisation and decentralization of authority and supervision on the coinage system. Both features are of course entangled, but how and to what degree is always dependant on the political and administrative conditions. In a chronological overview these periods will be highlighted.

Heidemann, Stefan, "Numismatics – Coins and Coin Circulation from the 7<sup>th</sup> to the 11<sup>th</sup> Century." In: Chase Robinson (ed.), *The New Cambridge History of Islam, Volume 1: The Formation of the Islamic World, Sixth to Eleventh Centuries*. Cambridge 2010, pp. 648-663, 775-779, pl. 16.1-16.41.

Bacharach, Jere, Islamic History through Coins. Cairo - New York 2006, chapter 1.

#### Additional literature:

DeShazo, Alan S. – Bates, Michael L., "The Umayyad Governors of al-'Irāq and the Changing Annulet Patterns on Their Dirhams." In: *Numismatic Chronicle* 14 (1974), pp. 110–8.

El-Hibri, Tayyeb, "Coinage Reform Under the 'Abbāsid Caliph al-Ma'mūn." In: JESHO 36 (1993), pp. 58-83.

## Case studies (optional):

Bates, Michael, "Khurāsānī Revolutionaries and al-Mahdī's Title." In: Farhad Daftari – Josef W. Meri (eds), *Culture and Memory in Medieval Islam. Essay in Honour of Wilferd Madelung*. London 2003, pp. 279-317. [This is an exemplary study of what numismatics can do].

Ilisch, Lutz, "Marks and Isolated Words on Copper Coins Issued by the 'Treasury of Aleppo' in 146-148 H, a Clue to the Interpretation of Marks on Early Islamic Coppers?" In: Andrew Oddy – Ingrid Schulze – Wolfgang Schulze (eds.), Coinage and History in the Seventh Century Near East, Vol. 4. Proceedings of the 14<sup>th</sup> Seventh Century Syrian Numismatic Round Table held at The Hive, Worcester, on 28<sup>th</sup> and 29<sup>th</sup> September 2013. London 2015, pp. 241-250.

# January 9, 2019 – Organising a Major Mint in the Empire: The Case of Yaḥyā al-Harashī and Madīnat al-Jayy (Iṣfahān) in 162/778-9.

Guest Lecturer: Matthias Naue, Universität Hamburg.

The Early Islamic Empire was a highly monetarized society, this can be seen in its coinage, its deficiencies which resulted in imitations, and in its strength, the large scale of industrialized centralized production. As a case study, the mint of Madīnat al-Jayy (the citadel if Iṣfahān) became in the year 162/778-9 for only one year the second most prolific mint in the entire empire, after Baghdād. Responsible for this shift was the governor Yaḥyā al-Harashī. The lecture introduces briefly into the methodology of die comparison. It then shows in the case study the analyses of a hoard of about 500 coins from that very mint and year. Valuable data can be yielded about the monetarization of the empire by counting the dies. In comparison with other mints it will be looked at how the mint fits into the mint organisation of the empire in the time of caliph al-Mahdī.

Crone, Patricia, *Slaves on Horses. The Evolution of an Islamic Polity*. Cambridge et al. 2003, pp. 144-145 (follow the cited literature on Yaḥyā al-Harashī).

Grierson, Philip: Numismatics. London et al. 1975, pp. 140-161.

Noonan, Thomas, "Early 'Abbāsid Mint Output." In: JESHO 29 (1986), pp. 113-175.

## Explanation and application of the method in Islamic numismatics:

Bacharach, Jere, "Early Islamic Mint Output: A Preliminary Inquiry into the Methodology and the Application of 'Coin-Die Count' Method." In: *JESHO* 9 (1966), pp. 212-241.

# Jan. 23, 2019 – Imperial Titulature on Sanjar's Coinage – Imperial Authority from a Regional Perspective.

# Guest Lecturer: Dr. Sebastian Hanstein, Universität Tübingen.

The Seljūq Empire in the Middle Islamic Period was differently organised than the Islamic Empire in its early phase. As Jürgen Paul explained, we have core regions where the Sultan Sanjar executed immediate power, but also quite autonomous governors, and vassal states, and rulers who just acknowledge the overlordship of Sanjar. The fractured empire did not have a unified coinage or coinage system, or an administrative body supervising the coinage. There were interregional coinages such as the Dīnār of Nīshāpūr and regional precious coinages. The regional coinages were commissioned by regional governors, and vassal rulers. The tradition of the sikka, the naming of the hierarchy of power from time of the centralised empire of the 3<sup>rd</sup>/9<sup>th</sup> century was upheld, but under the condition of regionalised coinages in large and powerful empire from Syria to Central Asia. The text of these coins mirror still the imperial hierarchy up to the sultan and the caliph, but always from the local perspective. This is reflected not only in the design, but also in the the positioning of the names, and finally in the use of the elaborate titulature for the hierarchy of overlords.

Peacocks, A. C. S., The Great Seljuk Empire. Edinburgh 2015.

#### <u>Additional literature:</u>

Paul, Jürgen, Lokale und Imperiale Herrschaft im Iran des 12. Jahrhunderts. Herrschaftspraxis und Konzepte. Wiesbaden 2016.

# **Essential Modern Catalogues and Monographs of Islamic Numismatics**

This list of references includes **mostly major monographs of the past twenty years** in order to map the state of the art. Other reference tools and their additions and corrections can be easily searched with the common bibliographic tools.

# 1 - General References

Bosworth, Clifford Edmund, *The Islamic Dynasties*. Edinburgh 1980. [Indispensable list for dynasties. It adds numismatic data. It is best used together with Album 1998].

Broome, Michael, *A Handbook of Islamic Coins*. London 1985. [An introduction to the coinages of various dynasties. It is meant as an overview for beginners].

Burnett, Andrew, *Interpreting the Past*. Berkeley 1991. [Although the book focus on Britain, it provides an excellent brief overview].

Grierson, Philip, Numismatics, London et al. 1975. [A general introduction into the field of numismatics].

Plant, Richard, Arabic Coins and How to Read Them. London 1973. [A beginner's guide to the reading of Islamic coins].

To convert Islamic dates to Christian/Common ones, use <a href="http://www.oriold.uzh.ch/static/hegira.html">http://www.oriold.uzh.ch/static/hegira.html</a>

## 2 – Bibliographies

- Album, Stephen, *Checklist of Islamic Coins*. 3<sup>rd</sup> ed., Santa Rosa 2012. [Despite its humble appearance, the book is the result of 40 years of scholarship in an extremely compressed form. It functions as a dynastic reference tool. The ruler is followed by lists of major coin types. The book has no illustrations but refers to the standard literature. A revised illustrated edition is awaited soon].
- Diler, Ömer, *Islamic Mints*, 3 vols. Istanbul 2009. [This book is conceived as a revision of Zambaur. Despite being a major contribution, it suffers from the inability of the author of foreign languages and the focus of the author of Anatolian coinages. It should be always used in conjunction with Zambaur and the knowledge that this list is not complete].
- Mayer, Leo Ari, *Bibliography of Moslem Bibliography*. London 1954. (A still useful bibliography with short descriptions of the content of every article or book).
- von Zambaur, Eduard, *Die Münzprägung des Islams*. Wiesbaden 1968. [An index of published coins prior to World War I according to their mints. It is the key to the older literature].
  - Miles, George C, "Additions to Zambaur's Münzprägung des Islams." In: *American Numismatic Society Museum Notes* 17 (1971), pp. 229-233.
  - Djaparidze, Gotcha, "Nouvelles additions à l'ouvrage de Zambaur 'Die Münzprägung des Islams'." In: *Bulletin d'Études Orientales* 32-33 (1980-1981), pp. 89-97.
- The "Survey of Numismatic Research" published by the International Numismatic Commission every five years has a chapter on Oriental Coins. The latest survey was published in 2015:
- Heidemann, Stefan Alberto Canto Vladimir Nastich, "Islamic Section: The Mediterranean, Western Eurasia, Central Asia, and Later South Asia." In: Maria Caltabiano Carmen Arnoldi-Biocchi (eds.), Survey of Numismatic Research 2008-2013 (International Association of Professional Numismatists Special Publication 16). Rome 2015, pp. 531-593.

#### 3 - Sylloges

After more than hundred years of sporadic debate among Islamic numismatists, in 1993 the first

publication of Islamic coins in the sylloge format marked a paradigmatic shift. The mint and its production sequence are from now on the focus of numismatic research, no longer dynasties or rulers. Sylloges are museum catalogues which follow a regional order by mint. They have on page the description and on the opposite the illustration of a coin. The model is the project founded by the British Academy founded in 1931 (*Sylloge Nummorum Graecorum*).

#### Jena:

Mayer, Tobias, Sylloge der Münzen des Kaukasus und Osteuropa im Orientalischen Münzkabinett Jena (Orientalisches Münzkabinett Jena 1). Wiesbaden 2005.

#### Jerusalem:

Baidoun, Issa, Sylloge of Islamic Coins in the Israel Museum. Egypt, Vol. 3: The Mamluks 1248-1517. With a contribution by Warren C. Schultz (Polymnia Numismatica Antica e Medievale. Documenti 2). Trieste 2011.

#### Oxford:

- Album, Stephen Anthony Goodwin, Sylloge of Islamic Coins in the Ashmolean. Vol. 1: The Pre-Reform Coinage of the Early Islamic Period (Sylloge of Islamic Coins 1). Oxford 2002.
- Nicol, Norman Douglas, Sylloge of Islamic Coins in the Ashmolean. Vol. 2: Early Post-Reform Coinage (Sylloge of Islamic Coins 2). Oxford 2009.
- Nicol, Norman Douglas, Sylloge of Islamic Coins in the Ashmolean. Vol. 6: The Egyptian Dynasties (Sylloge of Islamic Coins 6). Oxford 2007.
- Album, Stephen, Sylloge of Islamic Coins in the Ashmolean. Vol. 9: Iran After the Mongol Invasion (Sylloge of Islamic Coins 9). Oxford 2001.
- Album, Stephen, Sylloge of Islamic Coins in the Ashmolean. Vol. 10: Arabia and East Africa (Sylloge of Islamic Coins 10). Oxford 1999.

### Tallinn:

Leimus, Ivar, Sylloge of Islamic Coins 710/1-1013/4 AD. Estonian Public Collections (Thesaurus Historiae 2). Tallinn 2007.

#### Tübingen:

- Ilisch, Lutz, Sylloge Numorum Arabicorum Tübingen. Palästina, IVa Bilād aš-Šām I. Tübingen et al. 1993.
- Ilisch, Lutz, Sylloge Numorum Arabicorum Tübingen. Die Münzstätte Damaskus von den Umayyaden bis zu den Mongolen ca. 660-1206 AD, Ivb1 Bilād aš-Šām II. Tübingen et al. 2015.
- Korn, Lorenz, Sylloge Numorum Arabicorum Tübingen. Hamāh, IVc Bilād aš-Šām III. Tübingen et al. 1998.
- Mayer, Tobias, Sylloge Numorum Arabicorum Tübingen. Nord- und Ostzentralasien, XVb Mittelasien II. Tübingen et al. 1998.
- Schwarz, Florian, Sylloge Numorum Arabicorum Tübingen. Ballı und die Landschaften am oberen Oxus, XIVc Ḥurāsān III. Tübingen et al. 2002.
- Schwarz, Florian, Sylloge Numorum Arabicorum Tübingen. Gazna/Kabul, XIVd Ḥurāsān IV. Tübingen et al. 1995.
- Fedorov, Michael Boris Kochnev, *Sylloge Numorum Arabicorum Tübingen. Buḥārā, Samarqand, XVa Mittelasien I.* Tübingen et al. 2008.
- Ramadan, Atef Mansour, Sylloge Numorum Arabicorum Tübingen. Naysābūr, Sabzawār und die Münzstätten in Ğuwayn, XIVa Hurāsān I. Tübingen et al. 2012.

# 4 – Corpora (of the Past Twenty Years)

Despite their merits, sylloges are just intermediary steps towards a corpus of the production sequence of mints, regions or states, meaning catalogues which reconstruct the complete mint output and constituting a parallel historical narrative of the city within a region; parallel to the literary evidence. Some of the books below were begun already in the 1970s and follow basically a conventional dynastic narrative, while others such as Luke Treadwell's book are organized according to mints, and taking the die as the main meaningful numismatic unit. All of the books are standard references for the next decades to come.

- Bacharach, Jere L., *Islamic History Through Coins. An Analysis and Catalogue of Tenth-Century Ikhshīdid Coinage.*Cairo 2006. [Corpus and exemplary study for the parallel reading of coin sequences and literary narratives].
- Bernardi, Giulio, Arabic Gold Coins Corpus I (Polymnia, Numismatica antica e medievale. Documenti 1). Trieste 2010.
- Broome, Michael R., *A Survey of the Coinage of the Seljuqs of Rūm. Ed. and prep. for publ. by Vlastimil Novák* (Royal Numismatic Society. Special Publications 48). London 2011.
- Diler, Ömer, Ilkhans. Coinage of the Persian Mongols. Istanbul 2006.
- Foss, Clive, *Arab-Byzantine Coins. An Introduction, with a Catalogue of the Dumbarton Oaks Collection* (Dumbarton Oaks Byzantine Collection Publications 12). Washington, DC 2008.
- Goodwin, Tony, *Arab-Byzantine Coinage* (Study in the Khalili Collection 4). London 2005. [Ground-breaking survey of that coinage and die study of some mints).
- Gyselen, Rika, *Arab-Sasanian Copper Coinage* (Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse, Denkschriften, 284 Veröffentlichungen der numismatischen Kommission 34). 2<sup>nd</sup> rev. ed., Wien 2009.
- Klat, Michel, Catalogue of the Post-Reform Dirhams. The Umayyad Dynasty. London 2002.
- Lowick, Nicholas Elisabeth Savage, Early 'Abbāsid Coinage. A Type Catalogue 132–218 H/AD 750–833. A Posthumous Work by Nicholas Lowick, ed. by Elisabeth Savage. Unpubl. manuscript, London 1996. [This book was conceived in the 1960s and edited after the death of NL. Although in the editorial process sorted the entry according to regions and mints, it combines the flaws of any posthumous book and the description technique of pre-sylloge period, where not every coin was illustrated. Nevertheless, this book is the best available references for early 'Abbāsid coinage. Every entry however has to be checked if reading and identification is correct. This book was widely distributed as photocopy and serves as indispensable reference for the period but be cautious].
- Malek, Hodge Mehdi, *The Dabuyid Ispahbads and Early 'Abbasid Governors of Tabaristan. History and Numismatics* (Royal Numismatic Society Special Publication 39). London 2004.
- Nicol, Norman Douglas, *A Corpus of Fatimid Coins*. Trieste 2006. [This monumental monograph conceived in the 1970s continues the dynastic approach and still focuses on the coins itself].
- Shamma, Samir, A Catalogue of 'Abbasid Copper Coins. Thabat al-fulūs al-'abbāsiyya. London, 1998. [This book is more a negative example for a numismatic book, but a useful handlist, if one knows how to deal with it. Contrary to the Lowick/Savage corpus, this book is published].
- Treadwell, Luke, *Buyid Coinage*. A *Die Corpus* (322–445 AH). Oxford 2001. (This is an exemplary catalogue, which focuses on the reconstruction of the die as text bearer und meaningful numismatic unit).
- Vardaniyan, Aram, Islamic Coins Struck in Historic Armenia. Vol. 1: Armīniya, Arrān (Madīnat Arrān), Bardaʿa, Dabīl, Hārūnābād / Hārūniya and Maʿdan Bājunays, Early ʿAbbāsid Period (142-277 AH/759-891 AD). Yerevan 2011.

## 5 – Mint monographs (Corpora)

Miles, George C., *The Numismatic History of Rayy* (Numismatic Notes and Monographs 2). New York 1938. [Classical ground-breaking work.]