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*Abstract:* Ancient Egypt provides a number of excellent examples for the growth and decline of state institutions as well as the agency and historical impact of exceptional kings and individuals. In this contribution, the Fifth Dynasty tomb complex of Ty dated to the reign of Nyuserre (early 24<sup>th</sup> century BC) is discussed. Ty was the first of wealthy Old Kingdom officials who initiated the construction of monumental richly decorated tomb complexes for themselves and their families. Ty serves as a specific example of a microcosm illustrating the significance of general trends on which the Ancient Egyptian society of the day operated. At the same time, it features several characteristics which have theoretical impact and relevance for comparative study of civilisations and their dynamics.

*Keywords:* Complex societies – Ancient Egypt – Old Kingdom – punctuated equilibrium – social status race – Abusir and Saqqara – Fifth Dynasty – tomb of Ty – nepotism – Nyuserre

## **Radek Mařík – Veronika Dulíková**

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*Abstract:* Egyptology is becoming a strategic scientific discipline in that it is instructive for contemporary civilization and makes it possible to avoid critical mistakes in its development. However, classical Egyptology tools need to be supplemented by modern procedures that are more efficient in terms of the speed of the production of results and the processing of much more extensive data volumes, delivering more accurate and reliable evaluation of the findings. Since the time of Plato, cybernetics has been providing methods by which models based on observations of the environment or sensor data are created to reflect the properties of systems and environments, and actions that change the environment are generated. Many of these practices, which include elements of learning and deduction techniques, are developed within the field of artificial intelligence. Methods that specialize

in analysing relationships that can be modelled by graph theory are now widely developed within the framework of complex network analysis. To emphasize the increasing rate of application of these scientific methods to cover new challenges in processing ancient Egyptian data, the concept of cyber-Egyptology has been introduced recently. Cyber-Egyptology deals with the interpretation of ancient Egyptian data and Egyptologists' observations using techniques based on the principles of cybernetics, artificial intelligence, and complex network analysis that might be modified to cope with a limited amount of complex structures containing uncertainties and missing entries. We offer an overview of a selected set of such methods and their application to Old Kingdom data.

*Keywords:* Old Kingdom – complex network analysis (CNA) – cyber-Egyptology – artificial intelligence – administration – titulary – society

### **Émilie Martinet**

*Analysing the dynamics among the social groups and the mechanisms of social promotion in the provinces in the late Old Kingdom: SNA methods and new research approaches . . . .* 71

*Abstract:* Social transformations are discernible within the whole Egyptian society from the time of the late Old Kingdom. Social mobility and hierarchy are crucial issues, especially concerning the provinces marked by an increase in the number of titled individuals. The visual representation of social networks from the iconographical data and records coming from the tomb of Pepyankhheryib (14<sup>th</sup> nome of Upper Egypt) using the Gephi software makes it possible to uncover the role of some individuals in this network as well as detect the dynamics among the social groups surrounding the tomb owner, notably by connecting individuals who were involved in similar institutions. This approach, producing results that were unnoticeable from a manual method alone, ties in with a more global one whose aim is to investigate the social structures as well as the process of social promotion in Old Kingdom provinces by tackling this issue in a comprehensive way, based upon a crossover study of the written, iconographical and archaeological sources, and comparing the results with those obtained from my analysis of the provincial administrative structures.

*Keywords:* networks – elites – Old Kingdom – social promotion – provinces

### **Hans-Hubertus Münch**

*Representations of households in Old Kingdom Egypt: A contribution to a history of social order . . . . .* 96

*Abstract:* Representations of households in Old Kingdom offering chapels are proposed as important instruments in the reconstruction of the social reality of their audience. The argumentation is theoretically based on the sociology of knowledge as practised by a specific branch within German-speaking medieval history.

*Keywords:* household – order – interpretative models – oikos – knowledge – social construction – reality – representations – hierarchy – Wissenssoziologie

**Anne Herzberg**

*Towards a Memphite prosopography of the New Kingdom – Promises and pitfalls of historical network analysis* ..... 105

*Abstract:* Although the scientific discussion about the site and its monuments forms an independent research focus, the archaeological legacy of the Memphite necropolis of the second millennium BC remained uninvestigated for a very long time. The Memphite elite tombs of the New Kingdom (1539–1077 BC), which have been discovered and excavated during the past 45 years, eventually revealed much prosopographical data. Relevant texts and inscriptions are to be found not only on the walls of the tombs but also on different types of objects that were part of the tombs' original equipment or decoration (e.g. coffins, stelae, statues, canopic jars, shabtis and decorated limestone blocks). By evaluating and comparing all prosopographical data, the Prosopographia Memphitica Project aims to attain a Memphite prosopography for the New Kingdom, which is intended to illuminate all identifiable social classes of the Memphite society and its relational patterns using historical network analysis.

*Keywords:* prosopography – Memphis – Saqqara – New Kingdom – historical network analysis

**Vincent Chollier**

*From court society to power networks: Evolution of social structures in New Kingdom's Upper Egypt* ..... 137

*Abstract:* The New Kingdom elite society is often seen as a monolithic part of the Pharaonic state. Yet, within it, the clergy of Amun's power grew increasingly until the advent of the Twenty-first Dynasty and its annexation of the Theban region. Economic and political reasons taking root in the Twentieth Dynasty have long been presented as the only justification for this splitting of the Egyptian power. However, social network analysis, and especially the study of social structures, helps to demonstrate that the preconditions for this situation emerged as early as right after the collapse of the Amarnian kingship.

*Keywords:* New Kingdom – Upper Egypt – Ameneminet – Amenemipet – power – centrality – Court – court society – elite – priesthood

**Yanne Broux – Frédéric Pietowski**

*Trismegistos' TOMATILLO: A new tool to visualize related data in an online environment* ..... 154

*Abstract:* This paper presents the history of Trismegistos Networks ([www.trismegistos.org/network](http://www.trismegistos.org/network)), a section of the Trismegistos platform that was designed with a twofold purpose: to make available interactive graphs of networks created for scientific papers, and to visualize relations between entries in the ever-expanding

Trismegistos databases. At first, TM Networks used the SigmaExporter plugin developed for Gephi, but since Trismegistos is constantly evolving, a live solution was needed. We therefore developed the TOMATILLO, the Trismegistos Online spaghettiMonster visualization Tool-illo ([www.trismegistos.org/network/tomatillo-demo](http://www.trismegistos.org/network/tomatillo-demo)), which is not only designed to pull data from Trismegistos directly but also offers more advanced filtering options to allow for more user interactivity.  
*Keywords:* network visualizations – online publication – user interactivity – Graeco-Roman Egypt

**Lena Tambs**

*Ancient archives and network models: The case of Pathyris (ca. 165–88 BC) . . . . . 171*

*Abstract:* The Ptolemaic military camp of Pathyris, established around 165 BC, has generated a rich body of written sources that reveal detailed information about the inhabitants and their socio-economic activities and relationships. Because the site was abandoned in the autumn of 88 BC, a large number of texts that are unlikely to survive continuous habitation has come down to us. Therefore, the Pathyrite community can be studied in detail through roughly three generations.

The paper introduces the author’s doctoral research and discusses the applicability of formal social network analysis (SNA) to ancient archive studies. The community can be meaningfully studied in the form of social networks through systematic documentation and analysis of prosopographical, attribute and relational data revealed by 427 Greek and Demotic documents associated with 21 ancient archives.  
*Keywords:* Pathyris – social network analysis (SNA) – Gephi 0.9.2 – ancient archives – Ptolemaic Egypt

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