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This anthology is based on contributions made in Mainz on 22 and 23 February 2013 at an international symposium which was organized by the Forschungsschwerpunkt Historische Kulturwissenschaften at the Johannes-Gutenberg-Universität Mainz. The aim of the conference was the investigation of the Nile as a natural phenomenon. Besides the fact that the river was extremely important for the whole country, which was already perceived in the ancient world, the essential impact on the environment and culture of Egypt must also be considered. The previous discussion on this topic is criticized for the fact that the handling of the scientific evidence is incorrect. Often too few and too old studies are used and then transferred to the situation in Pharaonic times. Furthermore, it is observed that there is often insufficient knowledge of geomorphology of floodplains in the treatment of this topic. It is precisely this desideratum that is to be tackled with this volume.

To achieve the intended goal specialists from different disciplines were brought together to discuss the chances of jointly studies on ancient Egypt. The Nile should be examined as both a natural and a cultural phenomenon so that it becomes possible to study human adaptations to social and physical environments. A very important message of the conference as well as the proceedings is the fruitful integration of data coming from natural scientific studies with results from Egyptological works. Pioneering feat in this direction was made by Karl Butzer who, as geographer and geomorphologist, focused on physical and cultural themes mainly in Africa and achieved to add environmental and ecological

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perspectives to the study of early civilizations. Another early and quite relevant contribution is the atlas of ancient Egypt by Baines and Málek (Baines and Málek 1980), where they present valuable maps that demonstrate also environmental features during different time periods. Of course, it is an extremely difficult task to accurately reproduce the numerous branches of the river, the shape of the coastline and the changes in the Nile over time. Since the 1970s research on Egypt has every now and then dealt with interdisciplinary studies of the landscape and the environment. Here, for example, the reflections on the ancient Delta shorelines of Rushdi Said (Said 1981: fig. 53) can be mentioned. But only for about two to three decades has Egyptology begun to intensify this field of research. This circumstance certainly has to do with the many new technological methods that can be used to study ancient landscapes. The work in hand is a very good example for the successful combination of studies in earth science and Egyptological and archaeological evidence.

Most of the contributions give an understanding of a specific site or a region and explain the environment’s impact on the living conditions and – in this context – processes within the Egyptian society. It is important to keep in mind that Egypt is a large and diverse region. This is true for its climate as well as its resources and the challenges and potentialities for irrigation and using the Nile as transport route.

The volume starts with an exciting re-evaluation of land registers (P. Wilbour, the Louvre AF 6345-Griffith fragments, P. Reinhardt) by Jean-Christophe Antoine. He uses statistical methods to analyze the structure underlying these texts and subsequently to propose a model of the agricultural landscape in eleventh and tenth century BC Middle Egypt. Antoine was able to use statistical methods like univariate analysis, multivariate logistic regression, and multiple correspondence analyses, to establish certain links between social categories and geographic zones. Based on his results he suggests minimal adjustments of the natural

\[1\] In our context, especially the following work is important: Butzer 1976.

\[2\] In the social sciences the application of this method is well known by Pierre Bourdieu.
riverine system and also highlights a social aspect linked to the agricultural exploitation of the Nile and the Bahr Yussef.

The paper by Sandra Sandri is dedicated to images of nilometers as part of Nilotic landscapes from Roman and late antique times. She presents twelve examples from various contexts and concludes that the depiction was in many cases intended to render an Egyptian motif and not realistic scenery.

Besides these two more socio-cultural topics the volume consists of several contributions to certain regions of Egypt, starting with Manfred Bietak's discussion on the location of the New Kingdom harbor Peru-nefer. He again advocates that the important port should be assumed at Avaris/Pi-Ramesse and not at Memphis. Bietak argues on the basis of a combination of written and archaeological sources as well as geomorphological evidence. Already in the 1970s Bietak made a major contribution (Bietak 1975) to the reconstruction of the landscape in the eastern Delta by combining archaeological and geographic data. This then innovative approach is now supplemented by the indication for a repetitive weakness in relation to sea incursions in the central western Delta. Overall, the easternmost Nile branches seem to be way more suitable, with its stable settling ground and higher sediment accumulation rates, for harbors.

The study by Judith Bunbury, Ana Tavares, Benjamin Pennington and Pedro Gonçalves bring forth new evidence for an eastward shift of the Nile bed and moreover a displacement of the Delta-head in course of time. The examination of the Memphite floodplain focused on environment factors that could have affected the area and thereby the living conditions around the residential city. Bunbury and her team put together results from different investigations in the past, including sources for the global sea levels, borehole work by the Survey of Memphis (concerning lateral migration of river bends), observations of floodplain elevation, and also studies on wadi and Aeolian sand depositions, to demonstrate the

3 First reference in detail see Bietak 2005.
development of the Memphite floodplain. In combination with archaeological excavation data the ancient landscape becomes therefore much clearer.

Another good example for the successful integration of various research fields is presented by Mansour Boraik, Luc Gabolde, and Angus Graham, who contributed their results on the evolution of the Nile embankments and quaysides at Karnak. Already since the early 20th century (Georges Legrain, Maurice Pillet) the notion arose that river banks, embankments and quaysides around the Karnak temple were located in a different way than today. Based on the analysis of written sources as well as geomorphological data, several to some extent hypothetical maps could be compiled to elaborate the changing landscape around the Karnak temple from the 18th dynasty onwards, showing also a westward migration of the Nile bed.

Also concerned with quays is the article by Félix Relats Montserrat who provides preliminary considerations on temples situated faraway from the Nile and the question of presumed channels between these temples and the river. There are multiple temples in the Theban floodplain not located near the Nile, but Relats Montserrat uses the temple of Medamud as a case study. He proposes on the basis of an intensive re-evaluation of the archaeological investigations that the temple was most likely not that distant from the Nile. Probably the tribune of the Roman temple served as access to a waterway, but he highlights that future geomorphological explorations are needed to become clear about the detailed stratigraphy.

The contribution by Cornelia Römer is of particular interest, as it also sheds light on certain measures taken by the population at the time and this envisages the relationship between landscape and society. Her current research is on the Nile in the Fayum and the question of water management. Römer speaks about two “Golden Ages” of the Fayum,

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4 In this context, the investigations of Sarah Parcak must be mentioned, who uses successfully satellite imaging to identify potential archaeological sites, also in Egypt, since the early 2000s. Satellite images can also help locate ancient waterways, cf. Parcak 2009: 27.
5 This topic was not presented at the symposium because the papers by Angus Graham and Luc Gabolde will be published in another context.
namely the time of the Middle Kingdom and the early Ptolemaic period. Important is the fact that the Fayum is exclusively fed by the Bahr Yussef and thus is exposed to the same conditions as the floodplains in the Nile valley. But unlike the Nile valley, the Fayum has no exit. The combination of archaeological and geomagnetic data with the help of Google Earth could show that during the mentioned periods measures were adopted to enlarge the area of arable land whilst the expansion of the lake was diminished.

Joshua Trampier starts his article with a clear critique of Egyptology, which has failed to pursue important issues of regional settlement and paleoenvironment while other disciplines are already advanced. Using the example of KomQamha in the western Nile Delta, he demonstrates the numerous possibilities of integrating digital methods into surveys, like remote sensing, but also emphasizes the indispensable combination with field surveys and analysis of historical maps.

The next two contributions meet precisely Trampier’s requirements and deal both with changes of the floodplain in Middle Egypt. In the first paper Gert Verstraeten, Ihab Mohamed, Bastiaan Notebaert, and Harco Willems present their preliminary results of the geomorphological research of the transition from the Nile floodplain to the desert in Central Egypt. By different methods (historic topographic maps, multi-temporal remote sensing imagery, GPS measurements, soil coring, sediment dating and geophysics) it could be determined that, on the east between el-Bersha and al-Dayr Abu Hinnis, the Nile has migrated westwards. In the western part, a reduction of the floodplain from the mid-Holocene aridification of the Sahara onwards is recognizable due to an intensified dune migration into the floodplain.

The second contribution by Harco Willems, Hanne Creylman, Véronique de Laet, and Gert Verstraten focuses on the applicability of historical maps for a reconstruction of the pre-industrial irrigation landscape on the example of the region between Dairut al-Sharif and the Fayum (mainly maps of the Description de l’Égypte, 18th century). The complex analysis revealed the assumption that a vast wet zone existed
between the Nile and the Bahr Yussef with the result that this had a huge influence on the Fayum and thus also on the handling of it. Since the maps show that the floodplain in the 18th century is largely a natural landscape, we may expect a similar situation in pharaonic times. This observation would also have a major impact on demographic calculations, as this area is not appropriate either for the cultivation of cereals or for habitation.

The last contribution of this proceedings deals with the landscape in the Northern Delta between the seventh and ninth century AD. Penelope Wilson introduces the recent work on the nature of settlement in the area of Bashmur (surroundings of Lake Burullus). As part of the conducted surveys numerous previously unknown or at least potential archaeological sites were discovered\(^6\). Wilson presents five exemplary sites (Tell Mutubis, Tell el-Khubeiza, Tell Nashawein, Tell Singar, Mastarua) to contribute to the wider context of the Delta-landscapes and the important question of the relationship between the towns and the environment. Furthermore, she associates environmental change with the development of economic sustainability and the human response to these conditions.

To sum up, the proceedings present in a very satisfying way the current state of research in various regions of Egypt concerning the phenomenon of the Nile. The different approaches used in the studies show the importance and the value of interdisciplinary research and the great potential for prospective work in Egypt. Even though it has been touched on occasionally, considerations about the social and cultural implications of these environmental changes have come up short, but that might have gone beyond the scope. One may also miss current, detailed analyses of plant and animal remains and the opportunities but also challenges of this data that can also make a significant contribution to the paleo environment.

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\(^6\) Cf. also the previous work by Wilson on Sais in the western Delta and the application of vertical electrical soundings and hand augering: Wilson 2006.
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