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JOURNAL OF EGYPTIAN HISTORY 13 (2020) 271–294

JOURNAL of  
EGYPTIAN  
HISTORY

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# Eurasia and Ancient Egypt in the Fourth Millennium BCE

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## Abstract

This article focuses on technical innovations, new interregional networks, and social upheavals in the fourth millennium BCE. Similar trends in the iconography of the lion, the heraldic animal of power, can be observed in Egypt, Mesopotamia, and the Caucasus. This indicates that a process of concentration of power in the hands of strong rulers or kings took place relatively synchronously in these regions. The exchange of coveted raw materials such as copper and silver was connected with the transfer of knowledge between these regions, which can be seen in metal objects such as daggers and knives.

## Keywords

Egypt – Mesopotamia – Caucasus – iconography – metal trade – knowledge transfer

## 1 Introduction

Egypt has always played an important role in the archaeology of western Eurasia and is the only region in which a chronology based on written sources reaches back to the early third millennium BCE, therefore solidifying it as a consistent constituent part of comparative archaeology. The Bronze Age chronology of the second millennium BCE can be synchronized between Europe and Egypt through the excavations of Arthur Evans in Knossos on Crete, yet details of this are still under debate. The comparative chronology of the third millennium was in disorder. Until the 1980s, the established chronology connected the Early Vinča Culture in Serbia with the Fourth Dynasty in Egypt.

As we know today—after the radiocarbon revolution—the Vinča Culture had already started in the sixth millennium BCE.<sup>1</sup>

The inconsistencies in radiocarbon dating were finally solved in the early 1990s with the calibration of the dates through dendrochronology. This placed <sup>14</sup>C dating on a solid base. The radiocarbon revolution had already appeared on the horizon in the 1970s, but the extent of the potential presented by prehistoric archaeology emerged only after calibration. In the course of calibration, the chronology of the fourth and third millennia BCE in western Eurasia had to be changed profoundly, thereby shifting the European Corded Ware and Bell Beaker Cultures as well as the Pit Grave and Catacomb Cultures, traditionally dated to the early second millennium BCE, into the third millennium BCE. One of the most famous graves in Eurasian prehistory, the grave of Maikop (Figure 1) in the North Caucasus, was dated to the second quarter of the fourth millennium BCE, and this was more than 1000 years earlier than previously thought. After the first chronology for Europe as constructed by Christian Jürgensen Thomsen in 1836, in which he distinguished the Stone Age, the Bronze Age, and the Iron Age, some 150 years elapsed until European prehistory could be dated correctly according to calendar years. As a consequence, the new chronological order has not been developed yet in all regions, and certain find groups are still under discussion. Furthermore, the whole framework of interregional connections still has to be established in a completely new way.

Radiocarbon dating was also consequential for the prehistory of Egypt.<sup>2</sup> One of the major changes was the new chronology for the Naqada and Maadi-Buto Cultures, which was “stretched” into nearly the whole fourth millennium BCE, and the Badari Period was dated to the fifth millennium BCE. Through radiocarbon dating, Predynastic Egypt became a much longer period, which was in fact far more than just the “prelude” of the state. Excavations in Hierakonpolis, Abydos, and Buto exemplify the emergence of a new class of rulers, who were able to mobilize and control a human labour force in large numbers, combined with new technologies and the control of long-distance trade. Hence, the ability to compare Eurasian prehistory and Egypt in a proper way on a solid chronology has not existed for very long.

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1 Summarized in Korfmann, “Zum Stand der Chronologiediskussion.”

2 Hendrickx, “Predynastic—Early Dynastic chronology”; Dee, *et al.*, “An absolute chronology”; Hendrickx and Huyge, “Neolithic and Predynastic Egypt.”



FIGURE 1 Map with the sites mentioned in the text.

GRAPHICS: M. KARAUCAK

## 2 Innovations and Interconnectivity in the Fourth Millennium

The world has always been connected by human mobility, otherwise mankind would never have conquered the whole globe. Nonetheless, there are significant differences in the range of mobility and interconnectivity through the ages. It is a well-known fact that Neolithic societies were quite limited in connected networks. They had to stay on their clod of earth and could produce the basics of what they needed to survive.

This changed at least in the fourth millennium BCE, when new political and social constellations produced new needs, and the fulfilment of these needs changed the political and social circumstances. It was obviously the need of metal that was the motor powering long-distance trade and exchange, which also included other minerals like lapis lazuli as by-products.

As mentioned before, the fourth millennium BCE has been defined by radiocarbon dating in a new way, but the synchronization of the different regional

chronological sequences is still a challenge. It would overstretch the material evidence to draw a detailed picture. Therefore, the question here is not who influenced whom, or what can be explained by trade, cultural contact, or migration. Based on the new chronology, this article will instead demonstrate some similar trends in social development, supra-regional connectivity, iconographic understanding, and technological knowledge as observed in Egypt and adjacent regions of western Eurasia.

The emergence of the state as a historical new kind of rulership was one of the most momentous developments in the prehistory of mankind. This can be undersigned by those who consider the state as a big step towards civilization, like Steven Pinker, and by those who identify the emergence of the state with the loss of paradise, like Marvin Harris.<sup>3</sup> There is a multitude of theories about the formative process and function of the state;<sup>4</sup> according to the well-known definition by Max Weber, the state is a territorially delimited dominion, which claims a monopoly on violence and the legitimized rule of people over people.<sup>5</sup> However, these criteria for the early states have been placed in doubt.<sup>6</sup>

The formation of the state in Egypt and Mesopotamia occurred within a relatively short window of time, after the beginning of the productive mode of economy—a historical characteristic of Eurasia unparalleled in the world at large. Gordon Childe linked the “Urban Revolution,” as he named this process in analogy to the Neolithic and Industrial revolutions, with technical basis innovations: the wagon, the sailing boat, and metallurgy.<sup>7</sup> Today, it has been recognized that, subsequent to the “Neolithic” innovations of the ninth-seventh millennia BCE and the development of metallurgy in the fifth millennium BCE, there is a conspicuous accumulation of basis innovations in the fourth millennium BCE.<sup>8</sup> They included the domestication of the donkey and the horse, the cultivation of olives and wine, along with breeding the woolly sheep. Through different kinds of alloying, the production of metal objects was transformed from making prestigious objects to producing daily commodities. This was enhanced by new innovative techniques, such as casting in the lost-wax technique. Silver could be separated from lead by means of the cupellation technique, which became widespread throughout the entire eastern and central Mediterranean area during the fourth millennium BCE. Associated

3 Pinker, *The Better Angels of Our Nature*; Harris, *Cultural Anthropology*.

4 Bernbeck, “The Rise of the State”; Lull and Micó, *Archaeology of the Origin of the State*.

5 Weber, *Wirtschaft und Gesellschaft*.

6 Breuer, *Der charismatische Staat*.

7 Childe, “The Urban Revolution.”

8 Hansen, “Technische und soziale Innovationen.”

with the developments in metallurgy were numerous innovations related to weaponry: for example, the production of the first swords and spearheads. With regard to pottery, the potter's wheel must be underscored; equally worthy of mention is the development of script and the administration of goods by means of seals. Each of these innovations had considerable economic, social, and cultural consequences. However, they did not have the same effect in all places!

We are accustomed through evolutionary social theory to understand the development of power as a stage model. The Big Man was followed by the chief and the king.<sup>9</sup> This very useful typology, unfortunately, does not guide us in understanding the transitions from one system to the other. The reason behind this misconception is the fact that the typologies were built upon ethnographical observations made throughout the whole world during the nineteenth and early twentieth centuries. The discomfort with evolutionary theory recently became a topos in the relevant papers, but no alternative theory has been put forth yet.<sup>10</sup>

However, radiocarbon analyses allow us to analyse the archaeological record within the frame of detailed chronologies and to look for correlations between material culture and social organization. There are many qualitative and quantitative methodological tools for describing in detail the production and consumption of wealth, the degrees of power and inequality, the position of women, or the relevance of violence. There is no need to frame this as a kind of continuity of social development, but instead to mark the breaks and interruptions as well as the resistance against kingship and state organization. In this regard, there is a need and a new opportunity for comparative perspectives on the archaeology of the fourth millennium BCE on solid chronological grounds.

### 3 Power and Rulership

In the fourth millennium BCE, a new form of inequality and rulership appeared in the world. Within only a few centuries' time, larger communities grew from small independent villages in Egypt, and the first chiefdoms and proto-states subsequently developed into one large, unified state with a king

<sup>9</sup> Service, *Origins of the State and Civilization*.

<sup>10</sup> Stevenson, "The Egyptian Predynastic and State Formation."

of Dynasty 0 ruling Upper and Lower Egypt.<sup>11</sup> It was a process that was militarily highly expansive; Dynasty 0 established military control over the southern Levant.<sup>12</sup> In the end, this process led to a completely new system of governance with one single person at the top ruling the entire country. From then on, a king ruled Egypt—a potentate whose functions consisted no less in upholding the cosmic order that linked the ruling dynasty with the gods and legitimized royal authority. The Egyptian king was perceived as a divine being, guarantor for unity and prosperity of the country, mediator between mortals and deities, and bearer and executor of the directives of the gods.<sup>13</sup>

As early as c. 3600 BCE, strong rulers evidently could mobilise and control work forces and make use of exotic resources, so as to demonstrate their authority and enlarge their loyalties. Excavation in Hierakonpolis has produced evidence for the existence of rulers in Naqada IIB. Renée Friedman interprets the scale of the Tomb 23 architecture, the effort involved in its construction, and the presence of the stone statuary and offerings as belonging to one of the early rulers of Hierakonpolis.<sup>14</sup> The ten year-old elephant also buried in grave 24 was assumed to be associated with Tomb 23. The ownership and maintenance of such a mighty beast in both life and death have been marked as “an eloquent statement on the power and wealth of its master”.<sup>15</sup>

The idea of the kingdom in dynastic form likely evolved during this time.<sup>16</sup> The fragments from the limestone statue in Tomb 23 have been put in context with the so-called ‘MacGregor Man’ 400 years later, and interpreted as a king’s statue.<sup>17</sup> The scenes in the Naqada IIC Tomb 100 at Hierakonpolis show royal power through the smiting of enemies; violence was an important part of early rulership and was openly presented.<sup>18</sup> So, the state did not arise from an egalitarian society, but from a society in which the social differences between kinship groups had already been significantly enlarged.

But the scene in Hierakonpolis Tomb 100 had already been based on an iconographic tradition represented by a jug in grave U 239 at Abydos.<sup>19</sup> Another scene on a jug (Figure 2) was found in tomb U 415/1, which has been dated to

11 Andelković, “Political Organization of Egypt in the Predynastic Period”; Baines, “Origins of Egyptian kingship.”

12 Mączyńska, *Lower Egyptian communities*, 32–36.

13 Bárta, “Egyptian Kingship during the Old Kingdom,” 259; Moreno García, *The State in Ancient Egypt*, 138–45.

14 Friedman, “Excavating Egypt’s early kings,” 1155.

15 Friedman, “Excavating Egypt’s early kings,” 1168.

16 Friedman, “Hierakonpolis,” 44.

17 Harrington, “MacGregor Man.”

18 Quibell and Green, *Hierakonpolis*, pl. LXXVI.

19 Dreyer, *et al.*, “Naqada and Ballas,” 111–14, Abb. 12.1, 13.

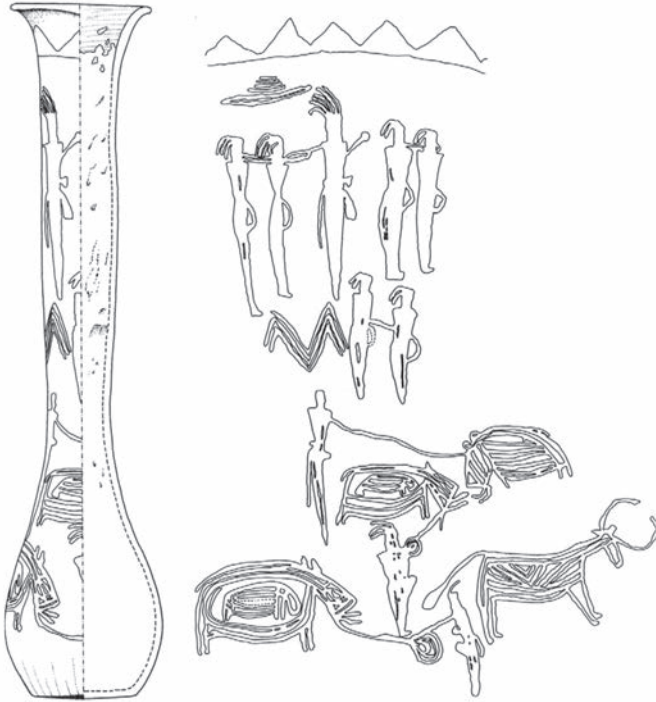


FIGURE 2 Abydos Grave U-415. After Hartmann, *Umm el-Qaab IV*.

Naqada IA–IB.<sup>20</sup> And, lastly, the Narmer palette shows the severed heads and penises of the slain enemies.<sup>21</sup>

Graves in Egypt enable the characterization of mighty leaders of the later fourth millennium BCE on an archaeological basis. For example, grave U-j at Abydos dates to the time between c. 3200 and 3150 BCE.<sup>22</sup> Among the grave goods, most of which are lost, were some 2000 vessels, containing mainly oil or fat. Further, 400 Canaanite vessels with c. 4500 litres of wine were also deposited with the dead king.

Unfortunately, graves of the potentates in Mesopotamia at that time are missing. Nonetheless, pictorial representations from the last quarter of the fourth millennium BCE enable several functions of the rulers to be recognized that are comparable with those in Egypt: the king is portrayed as an

20 Hartmann, *Umm el-Qaab IV. Die Keramik*, 241–46, Abb. 115–116.

21 Davies and Friedman, “The Narmer Palette.”

22 Dreyer, “Tomb U-j,” 128.

extraordinary warrior, an expert hunter, and the highest priest who regulates the relationship between human beings and deities.<sup>23</sup>

In northern Mesopotamia, the socio-political and cultural developments in the late fifth and fourth millennia BCE were much more dynamic than assumed even in very recent research. The first cities emerged, new forms of rulership formed, and a great potential for conflict and violence apparently led to massacres. This span of time was described as the “most crucial period in the growth of complex urban society” and a phase that has recently been referred to as already representing a “state-level.”<sup>24</sup> There, in northern Mesopotamia—not in the south—the course towards urban building and socioeconomic complexity might have opened.<sup>25</sup> According to Gil Stein, the early fourth millennium BCE was a time of powerful leaders, perhaps the first kings in the context of the emergence of urban centres and centralized administration.<sup>26</sup> In this context, particular note should be made of four mass graves in the small, satellite tell settlement of Majuna, dated to the Late Chalcolithic Period 3 (c. 3800–3600 BCE): most of the interred were young adults.<sup>27</sup> The skeletal remains showed traces of violence; some were disjointed. This lack of piety towards the dead strongly indicates that the deceased were slain enemies.<sup>28</sup>

Far away from these early civilizations, separated by the Caucasus mountain chain extending from the Caspian Sea to the Black Sea, the fourth millennium BCE was shaped by the Maikop Culture. In the city of Maikop in 1897 a huge grave mound with a splendid burial was excavated. Recently, Jurij J. Piotrovskij gave the most comprehensive introduction to this exceptional grave.<sup>29</sup> Unfortunately, there is no direct <sup>14</sup>C date for the grave itself, but it is embedded in a number of <sup>14</sup>C dates from sites considered to be contemporaneous or younger. So, the kurgan should have been erected between c. 3700 and 3500 BCE. The grave dates to more than 1000 (!) years earlier than previously thought.<sup>30</sup> The Maikop kurgan is one of the earliest monumental burials for a single deceased individual, and its construction doubtlessly necessitated

23 D. Hansen, “Art of the Early City-States,” 22.

24 Oates, *et al.*, “Early Mesopotamian urbanism,” 598.

25 McMahan, *et al.*, “Late Chalcolithic mass graves at Tell Brak,” 201.

26 Stein, *The Development of Indigenous Social Complexity*, 141.

27 McMahan, *et al.*, “Late Chalcolithic mass graves at Tell Brak.”

28 McMahan, “The Lion, the King and the Cage”; McMahan, *et al.*, “Late Chalcolithic mass graves at Tell Brak,” 215–16.

29 Piotrovskij, “Der Maikop-Kurgan (Osad).”

30 Govedarica, “Die Majkop-Kultur zwischen Europa und Asien.”



careful planning, extensive use of resources and the competent organization of a large work force.

The wooden grave chamber was carpeted with river pebbles and completely covered with minium, a bright orange-red pigment of lead. The chamber was sub-divided into three compartments. In the larger, southern part of the chamber was the principal interment, allegedly a male. Unfortunately, the skeletal remains were not kept by the excavators. Thus, no further information can be gained regarding age and sex. In the northern part were two interments: a female and a person whose sex could not be determined. The greatest number of grave gifts were found near the male's burial, whereas the others had comparatively few: earrings made of gold wire, gold and carnelian beads, and five bronze vessels. Nonetheless, this grave shows the practice of following-in-death. Obviously manifested here is a new form of disposal concerning the human body and life.<sup>31</sup>

Several thousand beads of turquoise, carnelian, silver, and gold were part of the male's burial, which impressively illustrate the requisite jewellery of early potentates. A set of arsenic bronze tools and weapons consists of two axes, two flat axes, an adze, two chisels, and two daggers. Through the alloying of copper, the production of long dagger blades became possible. The large dagger is 34.7 cm long and has silver rivets. Two bulls of silver and two of gold should be highlighted as well; these are outstanding examples of casting in the lost-wax technique. Further, there are gold appliques of lions and cattle. The metal vessels in the grave at Maikop deserve the greatest attention, not only because they are among the oldest known until now, but also because they were made out of three different kinds of metal: arsenic bronze, gold, and silver.

The Maikop grave is outstanding because of the considerable variety and wealth of its grave goods. Nevertheless, similar large kurgans are quite numerous in the Caucasus. Countless large kurgans are located in the northern foreland of the Caucasus, along the Terek and Kuban rivers, awaiting study. Some of them are even twice as large as the Maikop kurgan. The large kurgans are a clear contrast to the settlements with very simple architecture, which have only been investigated in small excavation areas. According to the excavations, cattle breeding seems to have been the economic focus of the Maikop people.<sup>32</sup> On the other hand, it is obvious that there was a developed copper, gold, and silver metallurgy, which produced innovative forms, such as the shaft

31 Testart, *Les morts d'accompagnement*; Hansen, "Technische und soziale Innovationen," 175–78.

32 Kohl, *The Making of Bronze Age Eurasia*, 76–77.

hole axe or large metal vessels. Furthermore, there are reasons to suspect that the Maikop culture played a role in the domestication of the horse and the breeding of the wool sheep. The whole phenomenon lasted until the end of the fourth millennium BCE and disappeared for unknown reasons.

#### 4 Lions and Bulls: Iconographic Innovations

During the fourth millennium BCE, a new iconographic program was developed that was different from the Neolithic imagery. Many of these images were iconographic innovations, which play an important role even today.

One of the most remarkable find groups in the Maikop grave are 70 small-sized figures of lions. There are 37 lions, each with a height of 6 cm, pacing to the right (Figure 3) and 33 smaller lions, 4.8 cm in height, going to the left.<sup>33</sup> In addition, there are 23 bulls (Figure 4) walking to the right (height 3.1 cm). These appliques were presumably sewn onto cloth or leather. Hence, the lions are not just single images to appreciate, but rather a message repeated seventy times. The lions in the Maikop grave are an iconographic innovation, for they do not follow a specific tradition. Instead, they present an almost singular manifestation for the Maikop Culture. Only one more golden pendant in the form of a lion protome can be added, which was found in the hoard from Staromyšatovskaja, dist. Krasnodar.<sup>34</sup> The bull appliques from the Maikop grave should be seen as part of the king's ideology as well.

In northern Mesopotamia, lion depictions have been found in Tell Brak, in a building that presumably was a workshop and, according to the excavators, was controlled by a "very senior official."<sup>35</sup> The pottery allows a date between c. 3800 and 3600 BCE. Found in the building were several seals with depictions of lions, which show the ties of the lion to administrative control. Two more seal impressions were found in the Late Chalcolithic layers on the main hill. In addition, seven seal impressions from the satellite Tell Majuna bear the motif of the captured lion. Two seals depict the direct fight between a lion and a human figure armed with a spear or a dagger.<sup>36</sup> The lion captured in a net is likewise a metaphor for the kingdom: the king is a lion and is even bigger than lions, because he is capable of hunting and capturing them. The use of the lion on seals was—we may assume—limited exclusively to the king and

33 Piotrovskij, "Maikop-Kultur," 314f., No. 20.20–21 with fig.

34 Piotrovskij, "Maikop-Kultur," 318, No. 21.1 with fig.

35 Oates, *et al.*, "Early Mesopotamian urbanism," 598.

36 McMahon, "The Lion, the King and the Cage," 177, fig. 1.

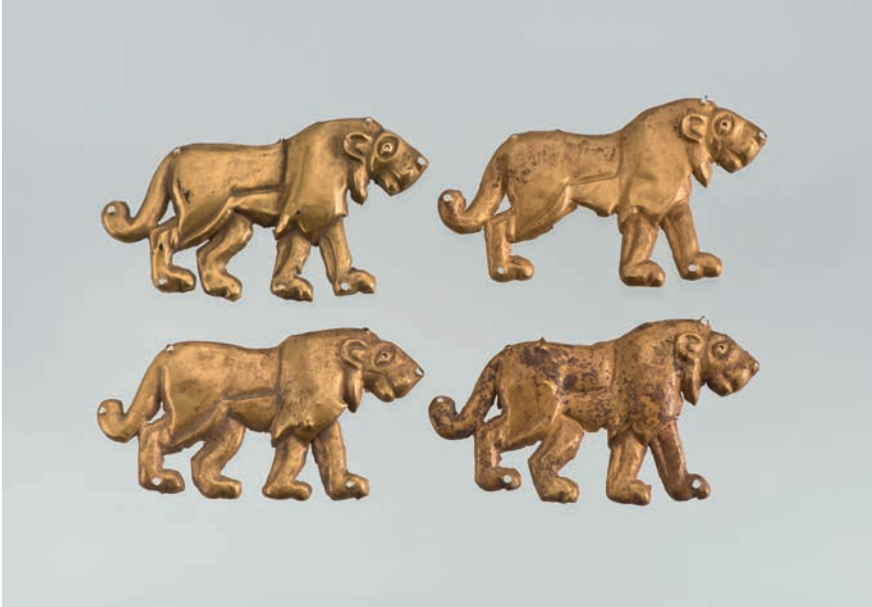


FIGURE 3 Maikop: golden lions.  
PHOTO: J. PIOTROVSKIJ



FIGURE 4 Maikop: golden bulls.  
PHOTO: J. PIOTROVSKIJ



FIGURE 5 Hierakonpolis Tomb 100. After Quibell and Green, *Hierakonpolis*.

his family. The frequent image on seals ensured his presence. Beside Tell Brak and Tell Majuna, seals with images of lions were also found in Arslantepe, Tell Hamoukar, Tepe Gawra, and Hacinebi.<sup>37</sup>

As grave finds from this time are largely lacking in Mesopotamia, the mighty leaders, chiefs or kings of that era cannot be archaeologically described. But, based on the lion depicted on seals, the beginning of royal lion ideology can be dated, as Augusta McMahon convincingly propounds, to the first half of the fourth millennium BCE. Gil Stein sees the lion seals in the context of early kingdoms as well.<sup>38</sup> The first depiction of a king in battle with a lion known in southern Mesopotamia is the lion-hunt stele from Uruk, dated to c. 3300 BCE.<sup>39</sup>

In Egypt, lion depictions also began to appear in the fourth millennium BCE.<sup>40</sup> The lion was part of the king's iconography, at least in the aforementioned Naqada IIC Tomb 100 at Hierakonpolis showing the ruler between two lions (Figure 5).<sup>41</sup> It is the same iconography as on the flint knife's ivory handle, allegedly from Gebel el-Arak.<sup>42</sup> The lion is frequently represented on flint knife handles from Abydos, as Günter Dreyer has shown.<sup>43</sup> It was the king

37 Hansen, "The Iconography of Inequality."

38 Stein, *The Development of Indigenous Social Complexity*, 141.

39 D. Hansen, "Art of the Early City-States," 23, fig. 5.

40 Petrie, *Prehistoric Egypt Illustrated*, 11.

41 Quibell and Green, *Hierakonpolis*, pl. LXXVI.

42 Bénédite, "Le couteau de Gebel el-Arak," 13, fig. 16; Sievertsen, "Das Messer vom Gebel el-Arak."

43 Dreyer, "Ein neues Fragment eines dekorierten Messergriffes."

who could defeat the lion and who could hunt the lion—the lion represented the kingdom. This political charging of the animal is confirmed impressively by several palettes of Naqada III Period. On the “Battlefield Palette,” the king attacks slain, fleeing, and captured enemies like a lion. The wild animal here is a metaphor for the king himself. He embodies the characteristics of the animal, such as strength and aggressiveness.<sup>44</sup>

Also, the bull should also be understood in association with the kingdom; on the Narmer palette, the king is depicted as the bull, which destroys the city. Probably, the bull was associated with the king much earlier. A large bull is depicted on the vessel of grave U-415/1 (see Figure 2) at Abydos in connection with the hippopotamus hunt; it has been suggested that there the bull already represents the idea of “royal” power.<sup>45</sup>

## 5 Material Evidence of Knowledge Transfer

The Early Bronze Age of the fourth millennium BCE was one of the most vibrant epochs, which was of crucial importance for cultural development in Europe and Eurasia. A substantial number of technical innovations was developed within only a few centuries’ time in the fourth millennium BCE. They constituted Eurasia’s specific historical development; it was a time of radical changes and transformations. Among the most important innovations were the wheel and the wagon, the breeding of a sheep with long hair, the domestication of the horse and the donkey, the cultivation of olives and wine, the potter’s wheel and, last but not least, the use of seals, writing, and the production of stone statues.

The dissemination of Neolithic innovations was part of a colonization process, in which settlers were penetrating into regions that were occupied by hunter-gatherer groups. The innovations were introduced in the areas settled by the colonists as a complete system. By contrast, the innovation processes of the late fifth and fourth millennia BCE were based on the transfer of knowledge, made possible through overlapping networks between settlement agglomerations. In these networks, the mobility of individuals played a role in long-distance trade and raw material supply. Knowledge transfer was at least connected with individuals. One characteristic in the dissemination of innovations in the fourth millennium BCE is the selectivity in the adoption of individual innovations, which could be integrated into the different systems. The

44 British Museum EA20791, allegedly from Abydos; Wilkinson, “What a King Is This,” 28. The object figures also in Teeter, *Before the Pyramids*, 222–23; Kelder, “Narmer, Scorpion and the Representation of the Early Egyptian Court,” 150.

45 Hendrickx and Eyckerman, “Visual representation and state development in Egypt,” 29.

potter's wheel never was used in the North Caucasus Maikop Culture and was introduced not before the Fourth Dynasty in Egypt. Also, the wheel and the wagon did not play a significant role in Egypt. The cylinder seals that reached the Caucasus were probably never used as seals.

In the fifth millennium BCE, copper and gold metallurgy started to change the lives of humankind; this was the first step into modern industry, while the second technological step was alloying metals. The mixing of copper with another metal—in the beginning, arsenic—changed its qualities. Casting became easier, and the elasticity and hardness of alloyed metals were enhanced considerably compared to that of pure copper. From a technique for prestigious goods emerged an efficient metal industry aimed at basic commodities. Linked with these technical improvements in metallurgy were technical innovations in weaponry: the first swords and spearheads as well as more effective battle axes appeared in the Caucasus and eastern Anatolia.

Arsenic bronze was common during the fourth and third millennia BCE, but it was always an open question as to *if* and *how* the arsenic content was manipulated by the casters. Recent examinations of slag from the industrial site of Arisman in Iran have substantiated the production of 'arsenspeiss' (iron arsenic alloy). This at least proves the technical capability of adding a specific amount of arsenic as an alloy in order to produce arsenical copper in a regular and well-controlled process.<sup>46</sup> Whether or not this capability had existed earlier than the early third millennium BCE and elsewhere cannot be stated yet.

In Egypt, metal was already in use during the Late Neolithic Badari Culture, but in small quantities, mainly as ornaments.<sup>47</sup> Ever since Naqada II, a greater variety of copper tools is known; gold became part of wealthy graves, as in Naqada 667 with beads of gold, lapis lazuli, glazed steatite, and carnelian, in the later phase of Naqada II. From the few existing analytical data, it seems impossible to draw conclusions about the provenance of predynastic metal and the recipes of its composition.<sup>48</sup>

The close contact between Lower Egypt and the Southern Levant included the exchange of metal, as could be documented by similar flat, rectangular and oval ingots and ingot moulds in Maadi and Hujayrāt al-Ghuzlān near Aqaba in Jordan.<sup>49</sup> This can serve as a model for how metal was distributed farther south to Upper Egypt on the one hand and from the Southern Levant to Upper Mesopotamia and beyond on the other.

46 Rehren, Boscher, and Pernicka, "Large scales melting of speiss and arsenical copper."

47 Baumgartel, *The Cultures of Prehistoric Egypt*, 2.

48 Rademakers, *et al.*, "Copper for the afterlife in Predynastic to Old Kingdom Egypt."

49 Rikzana and Seeher, "Maadi III. The Non-Lithic Small Finds"; Pfeiffer, "The Technical Ceramic for Metallurgical Activities in Tall Hujayrat al-Ghuzlan."

In the Southern Levant, metallurgy was already extremely innovative several centuries earlier. The late fifth millennium BCE hoard found in the Nahal Mishmar cave includes the most advanced metal artefacts of that time; it is like a laboratory of copper alloying with arsenic and antimony. At the same time, a number of objects were made in the lost-wax casting technique, for which the Nahal Mishmar hoard is also the first good example.<sup>50</sup> Because the used metal was not locally available, it was allegedly imported from East Anatolia or the Caucasus.<sup>51</sup> But how was it possible to cover a distance of more than 2000 kilometres? Since the second half of the fifth millennium BCE, the pottery tradition of the so-called chaff-faced ware was present in the area between the Amuq Valley and the South Caucasus, in a way linking the settlements in this region.<sup>52</sup> In the later fourth and the third millennia BCE, the presence of black pottery proves a strong connection between the Levant and the Caucasus.<sup>53</sup> This connection has always been interpreted as a route for metal exchange.

Long-distance trade is also the obvious case for lapis lazuli, a luxury good with presumably strong apotropaic qualities. Already in the Nahal Mishmar cave, both the metal and a lapis lazuli bead counted as exotic items.<sup>54</sup> In Egypt during the Naqada IIC, lapis lazuli was deposited in graves in a significantly higher proportion than during the previous period.<sup>55</sup> In the Caucasus, lapis lazuli has been found in small quantities, too.

One of the innovations in the fourth millennium BCE was the use of silver and the cupellation process, which came into use around the middle of the millennium.<sup>56</sup> Silver appeared in Egypt during the Naqada II Period. Elise Baumgartel pinpointed a globular bead from grave 1547 as the earliest known silver object.<sup>57</sup> It was found in a well-furnished grave in Homra Doum with a diorite axe, two copper adzes, a flint knife and two remarkable silver objects. The first object is a silver knife with parallel edges. It is 12 cm long and 3.3 cm wide and has been dated to late Naqada II.<sup>58</sup> These double-edged knives are not very numerous, yet they are clearly a tool type that was generally known.

50 Bar-Adon, *The Cave of the Treasure*.

51 Tadmor, *et al.*, "The Nahal Mishmar Hoard from the Judean Desert."

52 Marro, "Where did Late Chalcolithic Chaff-Faced Ware originate?"

53 Greenberg, "Transcaucasian Colors"; Kohl, "Origins, Homelands and Migrations."

54 Bar-Yosef Mayer, *et al.*, "Personal ornaments at the Nahal Mishmar cave of the treasure."

55 Bavay, "Matière première et commerce à longue distance," 81, Tab.1.

56 Hansen and Helwing, "Die Anfänge der Silbermetallurgie in Eurasien."

57 Baumgartel, *The Cultures of Prehistoric Egypt*, 7 (dated by Petrie to S.D. 38).

58 After Baumgartel (*The Cultures of Prehistoric Egypt*) dated to S.D. 55–56. Similar knives made of copper in Tarkhan, grave 22 (Petrie, *Tarkhan II*, pl. 111, 1917) and Naqada Grave 802 (Petrie and Quibell, *Naqada and Ballas*, 27, pl. LXV, 4).



FIGURE 6 Double-edged knives from Nalchik (left) and Homra Doum (right). After Belinskij, Hansen, and Reinhold, “The Great Kurgan from Nalčik” and Baumgartel, *The Cultures of Prehistoric Egypt*.

Surprisingly, a similar double-edged knife belongs to the grave furnishing in the big kurgan of Nalchik, dated between c. 3100 and 2900 BCE (Figure 6).<sup>59</sup> Comparable pieces made of arsenic bronze are known from other, richly furnished Maikop graves, as well.<sup>60</sup>

59 Belinskij, Hansen, and Reinhold, “The Great Kurgan from Nalčik,” 24, fig. 15.

60 Munchaev, “Мунчаев, Майкопская культура,” 204, pl. 53.





FIGURE 7 Daggers from Usatovo (left) and Homra Doum (right).

PHOTO LEFT: MUSEUM ODESSA

PHOTO RIGHT: AFTER BAUMGARTEL, *THE CULTURES OF PREHISTORIC EGYPT*

The second silver object from the Homra Doum grave is a silver dagger, 17.9 cm long and 5.1 cm at it widest.<sup>61</sup> It is without doubt a very precious object, not only because of the metal, but also in view of the quality of the cast. Another very similar silver dagger with an ivory handle (l. 16.6 cm) was found together with beads of carnelian and lapis lazuli in Grave 230 in El-Amrah.<sup>62</sup> The shapes of dagger blades from the fourth millennium BCE are very diverse. It is therefore worth emphasizing the form of the Homra Doum dagger blade, which resembles the Usatovo type (c. 3600–3200 BCE) from the northwest Pontic

61 Baumgartel, *The Cultures of Prehistoric Egypt*, pl. 2.4.

62 Randall-MacIver and Mace, *El Amrah and Abydos*, 23, 46, pl. VI, 1–2. See also a dagger handle from Abydos: Hartung, “Ein Fragment eines verzierten Dolchgriffs.”

region (Figure 7).<sup>63</sup> Again, the Levant may have played a role in the exchange of knowledge and technology, as silver finds are known here in large numbers.<sup>64</sup>

## 6 Concluding Remarks

During the fourth millennium, we may observe generally similar tendencies in Egypt, Mesopotamia, and the North Caucasus. Power was for the first time in the hands of individual rulers, who understood themselves as kings. This is what we have learned from the graves in Hierakonpolis and Abydos, and also from the Maikop grave and other “royal” kurgans in the North Caucasus. The details of these powers differed, a matter for comparative studies. Furthermore, it should be stressed that there were obviously alternative forms of social order, as represented by the Kura Araxes Culture in the South Caucasus. Their social order can be described as household-centered, productively non-specialized, and possibly non-hierarchical or heterarchical.<sup>65</sup>

The significance of the small appliques of 70 gold lions and 18 gold bulls from Maikop lies in the fact that they can be understood iconographically as a *self-description*. Through them, their bearer distinguished himself as a king and he did that quite impressively and ostentatiously with lavish grave goods and an 11-metre high grave monument. The definition of his rulership as proposed in the existing typologies of social theory might be different.<sup>66</sup> The important point here is that we are able to understand his position in a supra-regional context of increasing social differences and concentration of power. The iconography of the royal regalia and the symbols of royal sovereignty were understood throughout a wider region of Eurasia. Archaeologically, we can show the decisive point that the rulers there executed control over human beings.<sup>67</sup> Other persons had to follow the ruler in the case of death. They punished the enemies, who were those resistant to control by the ruler. The iconographic sources make clear that coercion and violence played an important role in this development. However, since power cannot be based solely on coercion, something more—presumably food supply—must have played an important role. The aggregation of larger amounts of people was the precondition for the

63 Dergačev, *Die äneolithischen und bronzzeitlichen Metallfunde aus Moldavien*.

64 More than 200 silver objects in Byblos: Artin, *La « Nécropole Énéolithique » de Byblos*. Also a remarkable silver vessel from grave 12 in Tell el-Farah: de Vaux, “La troisième campagne de fouilles à Tell el-Far’ah,” 587, fig. 13, pl. 27a.

65 Palumbi, “Push or Pull Factors?”

66 Claessen, “Kingship in the early state”; Godelier, “Versuch einer kritischen Bilanz.”

67 Breuer, *Der Staat. Entstehung, Typen, Organisationsstadien*, 38.

enlargement of labor forces. Furthermore, the specific ecological conditions along the Nile Valley made it easier to keep people in one place than was the case in the mountainous regions of the Caucasus.<sup>68</sup>

The ruler's immoderateness could be expressed on different levels in different ways by thousands of beads, or by an elephant! This was not only socially peculiar behaviour, it also had consequences as a kind of globalization. For example, access to metals and metal technology was highly important for the production of prestige goods and weapons. Thus, long-distance trade was one consequence, and the beginning of mining activities in many regions of the Europe and Eurasia another one. This also explains the material traces—in our case, silver knives and daggers—of the transfer of knowledge and technology associated with the trade in raw materials.

It is a current task of research to investigate more closely the technical and social innovations that led to fundamental changes in Eurasia and Northern Africa in the fourth millennium BCE. Today, the transfer of knowledge and techniques can be described in detail with a variety of quantitative and qualitative analyses. These will shed light on the dynamics resulting from the intertwining of different technologies. These interdependencies have led to the development of new combinations of existing technologies, which in turn have been a central factor in innovation.

### Acknowledgments

I thank the editors for the opportunity to participate in this special volume "Egyptology and Global History." This paper is part of my Advanced Grant that has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 (Grant agreement No. 834616). Emily Schalk and Hannah Gilb corrected my English text.

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68 Carneiro, "A Theory of the Origin of the State."

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