

TRANSPORTATION

المواصلات

Steve Vinson

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Short Citation:

Vinson 2013, Transportation. *UEE*.

Full Citation:

Vinson, Steve, 2013, Transportation. In Willeke Wendrich (ed), *UCLA Encyclopedia of Egyptology*, Los Angeles. <http://digital2.library.ucla.edu/viewItem.do?ark=21198/zz002hczw6>

8064 Version 1, August 2013

<http://digital2.library.ucla.edu/viewItem.do?ark=21198/zz002hczw6>

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Transport Transport

Transportation in ancient Egypt entailed the use of boats and ships for water travel; for land transportation, attested methods include foot-traffic and the use of draft animals—especially donkeys and oxen, but also, from the first millennium BCE onward, camels. Land vehicles, including carts, chariots, sledges, and carrying chairs, were dependent on the existence and nature of suitable routes, some of which may have been improved or paved along at least part of their extent. The transport of large objects, especially stone blocks, obelisks, and statues, required specialized techniques, infrastructure, and vehicles.

تضمنت وسائل المواصلات في مصر القديمة المواصلات المائية حيث استخدمت المراكب والسفن ، وبالنسبة للمواصلات البرية ، كان السير على الأقدام واستخدام حيوانات الجر بالأخص الحمير والثيران، ولكن أيضاً منذ الألفية الأولى قبل الميلاد بدأ المصريون القدماء في استخدام الجمال. كان استخدام المركبات البرية والتي تتضمن العربات الصغيرة والكبيرة (مثل العجلات الحربية) والزلاجات والكراسي المحمولة معتمداً على وجود طرق ملائمة والتي قد يكون البعض منها ممد جزئياً أو كلياً. كان نقل حمولات كبيرة خاصة الكتل الحجرية والمسلات والتماثيل تطلب تقنيات وبنية تحتية ومركبات متخصصة.

Egypt is a large country. The distance along the Nile from the Mediterranean coast to the First Cataract is about 1,100 kilometers, or about 660 miles, and the straight-line distance from the Red Sea coast to the site of ancient Koptos, where overland transport routes from the Red Sea to the Nile Valley historically converged, is about 90 miles or 145 kilometers. Egyptian merchants, messengers, and armies frequently traveled beyond the borders of Egypt to areas in which they had interests, especially Syria-Palestine and Nubia. Therefore, in order for Egypt to maintain cultural, political, and

economic cohesion, reliable transportation was essential. Egypt's most important, most visible, and best-documented means of transportation was its watercraft. However, pack animals, porters, wheeled vehicles, sledges, and even carrying chairs were also used to move goods and people across both short and long distances, and each played an important role. The regular transportation of stone from quarries that might lie far from the river, and grain from the countless large and small farms that existed throughout the Nile Valley, also required the organization and maintenance of integrated transportation

facilities and networks that involved both land and water transport.

Transportation of Heavy or Bulk Cargoes

Among the most important and most difficult items to transport in Egypt were large cargoes of stone and wood for monumental building projects, and large cargoes of grain collected as in-kind taxation and turned over to the state or to the temples. The transportation of both classes of cargo called for an integrated transportation system that combined both land- and river-transport, including the construction and maintenance of specialized infrastructure and vehicles.

Stone

Egypt's quarries required an extensive network of specialized loading docks, roads, and quays, and in some cases specialized vehicles, in order to get large building-stone out of the ground and to its designated construction sites. Massive objects like obelisks and monumental statues were even more difficult to handle. Although these operations cannot be reconstructed in detail and the methods used to carry them out no doubt varied considerably across space and time, various aspects of the process of moving stone are documented in, or inferable from, wall reliefs, documentary texts, or archaeological remains (figs. 1 and 2).

Over relatively short distances, small loads of stone might be carried by donkey or even human porters (Arnold 1991: 57 - 58). A road linking a gneiss quarry at Toshka in Nubia to the Nile River consisted of a track systematically cleared of gravel and debris, and marked with cairns and campsites, as well

as the hoof-prints of the countless donkeys that had hauled gneiss along the 80-kilometer route (Shaw 2006: 257 - 258). Very large stones, whether building blocks or finished objects like colossal statues or obelisks, were moved in the Pharaonic Period by sledges, which might have been used in conjunction with prepared hauling tracks. The most famous scene of such transport in action is the Middle Kingdom image of a colossal statue being hauled on a sledge to the tomb of Djehutyhotep at el-Bersha. This operation involved hauling the 80-ton statue no less than fifteen kilometers (see in general Willems et al. 2005). The relief also shows another important detail: water being poured to lubricate the track over which the sledge is being hauled. However, sledges were, themselves, occasionally fitted with rollers (Kitchen 1961) or even wheels (Littauer and Crouwel 1985: 96, note 4), and they might have been hauled by either men or draft animals (Arnold 1991: 277).

Over large distances, stone cargoes could only be hauled by river. Famous images of stone columns being conveyed for the construction of the Valley Temple of Unas (Fifth Dynasty; Landström 1970: 62, fig. 185) or the colossal obelisks of Hatshepsut (fig. 3; Eighteenth Dynasty; Landström 1970: 128 - 133; figs. 381 - 388) show the transport of large stone cargoes on board ships, but precisely how such cargoes were loaded and unloaded has always been something of a mystery. In a discussion dating to the early Roman Imperial Period, Pliny the Elder describes his understanding of methods that had been used by Ptolemy II to load an obelisk some three centuries earlier.

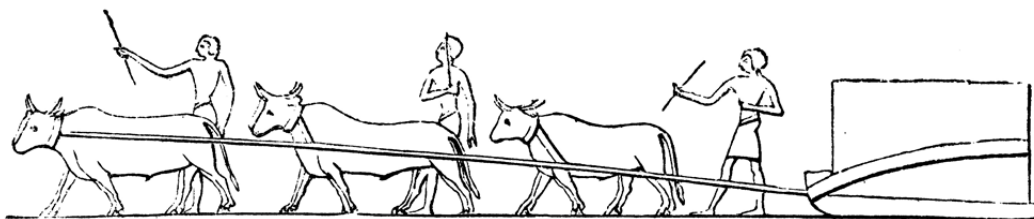


Figure 1. Transportation of a quarried block on a sledge drawn by oxen.

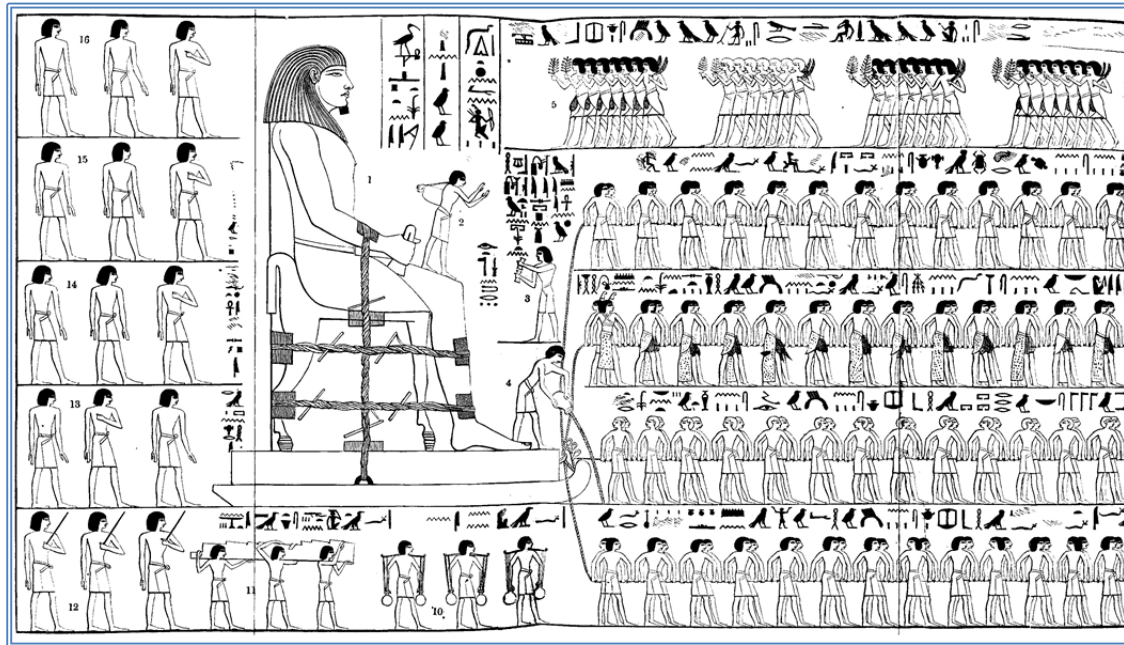


Figure 2. Transportation of a colossal statue from the quarries. Tomb of Djehutihotep, Deir el-Bersha.

According to Pliny, the obelisk was said to have been laid across a canal, and two barges, loaded down with smaller stones so that they were heavy enough to pass below the obelisk, were maneuvered into position underneath it. The smaller stones were then removed from the transport ships until they were light enough to float the obelisks (Arnold 1991: 62 - 63, discussing Pliny, *Natural History*, 36.14). The mention of two ships (*navesque duas*) in this context has suggested to some that a sort of catamaran or double-hulled vessel was routinely used to move large stone cargoes (Wirsching 1999; rebuttal by Carlens 2003). It seems likely that double-hulled ships were known in the Ptolemaic and Roman Periods (Casson 1995: 110 - 114), but Pliny's image as it stands seems improbable; Pharaonic images of the hauling of stone columns or obelisks show a single ship with the cargo parallel to the axis of the transport vessel. For the moment, the method or methods used by the Egyptians at any period to load barges with heavy columns, obelisks, or large sculptures remain unknown.

One early method for moving stones by water, however, is suggested by the archaeological excavation of "Chephren's Quarry," a site some 65 kilometers northwest of Abu Simbel in the Western Desert. Featured here was a special, purpose-built loading ramp that may have been designed to receive an amphibious raft that could be drawn up out of the river and pulled on runners (similar to the runners on sledges; see below). According to the excavators of this site, it seems possible that stone would then be loaded from the loading ramp onto the amphibious raft, which could then be dragged back to the river and floated directly downstream to construction sites in lower Egypt, without the necessity to load the stone onto boats (see Bloxam 2000).

For the very largest cargoes, like the Hatshepsut obelisks, purpose-built ships were necessary. However, smaller quantities of building stone or brick might have been hauled by ships intended for general cargo. An entry in a Ramesside account ostrakon is instructive (O Berlin P11292, 5-7): "The crew

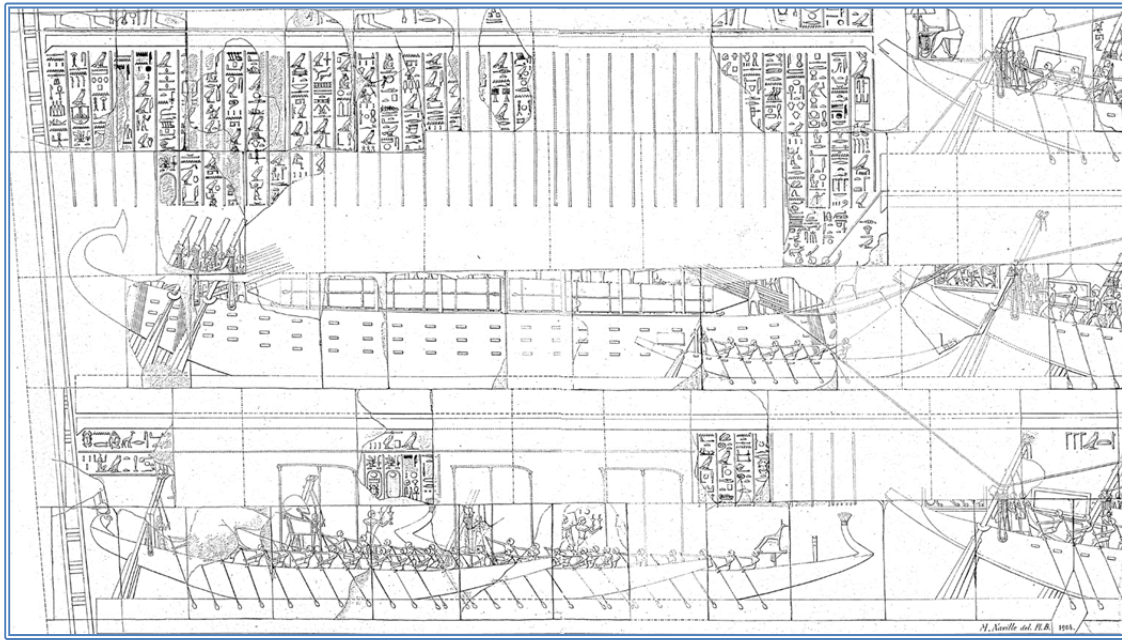


Figure 3. Relief depicting the specially designed barges transporting Hatshepsut's obelisks. Deir el-Bahri.

what was done by them, consisting of the emptying of the vessels that were under the authority of Penamun: seven vessels make 15 stones and 150 small bricks" (Vinson 1998a: 158; Kitchen 1991).

In the Roman Period, when both ancient obelisks and exotic stone such as porphyry from Mons Porphyrites were exported to Italy, the logistical problems were of course even greater. Unlike the Pharaonic Egyptians, the Roman-era stone-haulers made use of wheeled vehicles, which might have been loaded from specially built loading docks. In one case, we hear of a 12-wheeled stone-hauling wagon, which was perhaps configured with four axels with three wheels each. Such a wagon may have had an axel-width of 2.8 meters; comparable-sized wagons are suggested by Roman-era wagon tracks discovered in the Eastern Desert (Adams 2007: 199 - 200).

Wood

The transport of large quantities of wood, especially from western Asia, is documented from an early period in Egypt; much, if not all, of this cargo must have been transported

by sea. Imported wood was used in a number of First Dynasty royal tombs, and a First Dynasty label from the tomb of Aha associates an image of a ship with the word *mr* (cedar or pine) (Hoffman 1979: 296, fig. 70), although it is not clear whether the reference here is to the vessel's construction or its cargo. From the Fourth Dynasty (reign of Seneferu), the Palermo Stone records a shipment of some 40 ships loaded with coniferous wood (Wilkinson 2000: 141 - 142; Strudwick 2005: 66).

More details of the procedures by which the long, straight timbers available from the area of Lebanon and Syria were transported to Egypt come from the New Kingdom, when battle reliefs of Sety I at Karnak show foreign princes cutting down trees for transport back to Egypt, while others, possibly lower-status individuals, lower the trees with cables attached to the upper branches (Epigraphic Survey 1986: 28 - 34 and pl. 10). From the Third Intermediate Period, the *Report of Wenamun* describes large tree-trunks being dragged down to the shore (Wente 2003: 121 - 122). *Wenamun* reports that a limited number of wooden ship components were placed

aboard a transport ship bound for Egypt as a preliminary, good-faith shipment, but aside from this, no Egyptian text or image describes the specific modalities of the actual sea-transport of large timber. One might compare a first-millennium BCE Assyrian relief from the palace of Sargon at Khorsabad, which shows tree-trunks being towed behind Phoenician transport ships off the Syrian coast (Casson 1995: 66 with n. 115; fig. 92). Such towing may have been the (or a) method by which the Egyptians, or Western Asians in the service of Egypt, also moved cargoes of the largest trunks of wood back to Egypt.

Grain

While wood and stone were important for monumental construction and hence for the prestige of pharaoh and of the gods, the transportation of bulk commodities like grain was of fundamental economic importance and is much more thoroughly documented, especially in the Ramesside and Ptolemaic and Roman Periods. Typically grain would have been hauled, presumably by donkey, from farmsteads to embarkation points, where it would have been accounted for and loaded onto ships by local workers. Middle-Kingdom granary models, such as the famous model from the tomb of Meket-Ra at Thebes (MMA 20.3.1; Winlock 1955, pp. 87 - 88, pl. 20), show individual porters with sacks of grain on their backs, emptying them out one at a time into silos. From there, grain would have eventually been unloaded and placed aboard transport vessels. From the New Kingdom tomb of Paheri at Elkab, a work-song sung by stevedores loading grain onto transport vessels is recorded:

Loading the cargo ships
with barley and emmer. They say:
Will we spend the whole day hauling
barley and white emmer?
The full silos are overflowing;
piles reach their openings.
These ships are heavily loaded;
the grain is spilling out.
We are continually hurried on our way.
Look, our hearts are made out of bronze!

(Vinson 1998a: 157 - 158)

Extensive documentation, particularly from the Twentieth Dynasty, illustrates the process of hauling grain in large quantities. Among the most important documents in this respect is Papyrus Amiens, originally published by Gardiner (Gardiner 1948: 1 - 13 [Doc. 1]; 1941: 37 - 56), and more recently supplemented by a lost portion known as Papyrus Baldwin, published by Janssen (2004). Here we see the records of a flotilla of some 21 vessels that appear to have been engaged in a major tax collection voyage, perhaps in the region of Assiut, where the papyrus itself was found (Janssen 2004: 32 - 35). Each ship made multiple stops, embarking large quantities of grain, which were often accounted for in detail, according to the specific agricultural domain from which the grain came and according to the individual or group who were to be credited with supplying the grain. Occasionally, as in P. Amiens r. 4.1, we see grain transferred between ships, perhaps (but not certainly) due to vessels being disabled (Janssen 2004: 22). Another important Ramesside papyrus, the “Turin Indictment Papyrus” (P. Turin 1887; Gardiner 1948: 35 - 44 [Doc. 3]; 1941: 60 - 62), is notable for illustrating the opportunities for embezzlement that might present themselves to the operators of transport vessels hauling large amounts of grain (Vinson 1998a: 83, 109ff.).

The transport of grain in the Ptolemaic and Roman Periods in Egypt is extensively documented in Greek papyrological sources (see in general Verdult 1991; Adams 2007). An instructive example is the Ptolemaic-era account papyrus Oxy 3, 522, which describes how boat captains recruited local labor through village elders (*presbuteroi*) to load 5,400 artabas (about 170 metric tons) (Vinson 1998a: 158 - 159). Cargoes were often accompanied by persons known as *naukleroi*, whose function appears to have been to safeguard the cargo and organize transportation, not actually operate the ships in question (see in general Vélissaropoulos 1980; Verdult 1991). While the owner-

operation of transport vessels is attested in the Ptolemaic and Roman Periods (Vinson 1998a: 73; 1998b: 201, n. 22), transport vessels might also owned by wealthy investors, particularly members of the Ptolemaic royal family (Hauben 1979), or by governmental institutions such as the office of the *dioiketes*, or finance minister (Vinson 1998b).

Other objects

Vessel accounts and tomb illustrations illustrate a wide variety of cargoes on Nile vessels: gold, bricks, sand, reeds, cattle, fish, bread, cabbage, fruit, slaves, and tomb-robbery loot are all placed aboard (Vinson 1998a: 204 for references). Exotic, high-prestige products from the Near East, Europe (e.g., Mycenaean pottery; Merrillees 1973; for some more recent finds, see Mountjoy and Mommsen 2001), and Africa imply far-flung and complex transport networks involving sea-going shipping, land-transport within and beyond Egypt itself, and Nile-river shipping. Arrival of exotic tribute from sub-Saharan Africa is famously portrayed in the Eighteenth Dynasty tomb of Huy, viceroy of Nubia under Tutankhamen (Davies and Gardiner 1926: pls. XXIII, XXVII - XXX for Nubians greeting Huy; pl. XXXI for Nubians on board one of Huy's traveling boats), and the Sixth Dynasty tomb autobiography of Harkhuf illustrates not only donkey-caravan-based trade with the area of what is now Sudan, but also includes a copy of a letter to Harkhuf from the child-king Pepy II, excited over the impending arrival of a pygmy at the Egyptian court (Lichtheim 1973: 26 - 27). Young Pepy's pygmy suggests Egypt's connections to transport networks that extended deep into tropical Africa, and whose exact nature and extent can only be speculated upon.

Costs

Payments for transport-vessel crews are sporadically attested in Pharaonic documentation, but precisely what the costs were intended to cover, and how they related to the actual personnel and operational costs involved is seldom if ever made absolutely clear. The best example is the payments

recorded in Papyri Amiens and Baldwin. Since the payments bear no obvious relationship to the size of the cargoes, it seems likely that they were related to the size of the crew (Vinson 1998a: 55, 78 - 82; cf. also Janssen 2004: 27 - 28). In Ramesside documentation, specific expenses other than crew expense are seldom accounted for in detail. The Ramesside ship's log, Papyri Turin 2008 and 2016, includes items like a net, papyrus rope, fish, and water-birds as payments for lower-ranking crew members (Vinson 1998a: 63; cf. also Janssen 1961). In the Ptolemaic and Roman Periods, costs for river transportation are better documented. Operational expenses might have typically consumed thirty percent of gross vessel income, with the net divided between crew, owner, and taxes (Vinson 1998a: 62 - 63). Crew payments attested in the Ptolemaic Period include the 8.5 drachmas per month for crew members and ten per month for the captain, according to one of several payment plans proposed in the contract P. Cairo Zenon IV 59649 (Vinson 1998a: 82, 170 - 173).

Costs of land transport in Roman Egypt are discussed by Adams (2007). One calculation suggests that in the first century CE the transport of 100 artabas (about three metric tons) over a distance of 100 kilometers would cost about 39 drachmas, including six drachmas for donkey drivers. At this price, the cost of transport was between 5 and 13 percent of the value of the wheat itself (Adams 2007: 11 - 13). The price fluctuated considerably, however, throughout the Ptolemaic and Roman Periods—with monetary inflation and deflation, and with the varying costs of human and animal labor. Those responsible for transporting grain could economize by using their own donkeys, boats, and personnel, rather than hiring labor. In all periods, preserved price data suggest that transport cost per unit of cargo-distance declined as the volume of cargo and distance of transport increased, although this advantage will have been more obvious with the use of large transport vessels, for two reasons: both construction costs and crew requirements as a function of vessel volume

declined as vessel volume increased (Vinson 1998a: 67).

Road Networks

Although land transportation is less visible to us in the iconographic record than travel by boats or ships, there is an abundant and growing archaeological inventory of formal roads and informal overland routes that show the crucial importance of land transport for the functioning of Egypt's economy and culture. In the area of the flood-plain itself, ancient routes are often difficult to trace, with the exception of paved, ceremonial roads like the avenue of sphinxes linking the Karnak and Luxor temples. The ubiquity of canals, basins, and dykes will certainly have complicated land-travel, particularly during flood season; although dykes will also have provide raised routes that could be traversed to avoid fields, especially in times of high water. Outside of the flood plain, archaeological exploration of Egypt's desert transportation networks is an extremely promising field.

Overland routes branched off from the Nile Valley to take Egyptian work crews to quarrying regions in the eastern desert, from which building stone, semi-precious stones, and gold were obtained for Egyptian elite consumption and for export; the same routes continued on to the Red Sea coast, and so constituted a vital link between the Nile and the maritime routes in the Red Sea and Indian Oceans. Westward overland routes linked the Nile Valley to the oases in the western deserts, and the oases to each other. As we read in the Sixth Dynasty autobiography of Harkhuf, one of these routes, designated the "oasis road," appears to have left the Nile Valley around Abydos, and then to have continued south towards Nubia, thus complementing the Nile River route (Simpson 2003b: 410 with note 4; see also Edel 1955). At the very end of the Second Intermediate Period, this oasis route was the venue of one of the world's first recorded espionage missions: agents of the Seventeenth Dynasty Theban king Kamose intercepted a message from the Hyksos king in the Delta city of Avaris to a newly crowned

Nubian king, south of Egypt, urging him to join the Hyksos in an alliance to crush Kamose's bid to re-establish a united monarchy in Egypt (Simpson 2003a: 349). Clearly, the Hyksos had hoped that use of the desert routes would enable their couriers to bypass the Egyptians.

In the north, the "Way (or Ways) of Horus" was the name for a road along the northern Sinai Peninsula leading into southern Palestine, but other desert routes penetrated the peninsula itself (Mumford and Parcak 2003). Archaeological evidence, including incised Egyptian storage jars, shows that the north Sinai route was already in heavy use in the late Predynastic and Early Dynastic Periods (Oren 1973), connecting Egypt with both Canaanite communities and what appear to have been Egyptian settlements (Braun 2004: 512 - 515). Indeed the appellation "Way of Horus" (*wꜣt Hr*) occurs in the Pyramid Texts (PT 363 §607; Allen 2005: 77 [Teti 185]). The route was certainly used at all times by merchants (cf. Berghoffen 1991), but in periods in which the Egyptian state had interests in Palestine, it was a strategic military route as well. This was especially marked in the New Kingdom, particularly in the reign of Thutmose III, who launched repeated campaigns in Syria-Palestine. Throughout the New Kingdom there is substantial evidence of Egyptian military traffic along the route (Oren 2006). In the Ramesside Period, the route was marked by fortified garrisons and way stations, depicted in a relief of Sety I on the northern exterior wall of the Great Hypostyle Hall at Karnak (Gardiner 1920: pls. 11 - 12). Even further afield, merchant caravans traveled overland between Egypt and Mesopotamia (cf. Amarna Letter EA 7, 73 - 82; Moran 1992: 14).

Desert routes in Egypt tended to follow natural wadis, such as the Wadi Hammamat, which connected the Nile Valley to the Red Sea. Routes were often marked with stone cairns to keep travelers on their way, as well as stelae, huts, and small shrines. The provision of water along desert routes was important and the discovery of water sources could be

seen as an act of divine favor. In all periods, heavily used routes gradually accumulated debris in the form of potsherds or other trash left by travelers, and are also often marked by rock-art sites. Much such evidence has been discovered and admirably published by the Theban Desert Road survey under the direction of John Darnell of Yale University, who has intensively explored the network of roads used to short-cut the Nile's Qena Bend with a number of routes running from the vicinity of Thebes/Luxor in the southeast, northwest towards Hu, and from there, eastward towards the oases. Darnell has established that this area was well traveled during multiple periods of Pharaonic history, and his results suggest how much more there is to learn about Egyptian road networks (see J. Darnell 2002a and b; D. Darnell 2002).

In the Roman Period especially, desert routes are also marked by guard-posts and watch-towers (Zitterkopf and Sidebotham 1989), and along some routes, at least, tolls were charged for people and goods; presumably this was to provide revenue to support the cost of maintaining and protecting the routes. The famous "Koptos Tariff" was inscribed near Koptos under the Roman emperor Domitian in his ninth year (89 – 90 CE). The inscription lays out charges assessed for various classes of persons, animals, or items traveling or being transported along the desert route. Tolls varied widely—a "Red Sea skipper" paid eight drachmas, while "women for companionship" were assessed 108 drachmas (Young 2001: 49; Adams 2007: 132 - 133).

Comparatively few paved roads have been discovered from Pharaonic Egypt, but they are not unknown: a paved road linking Widan al-Faras and Qasr al-Sagha in the northern Fayum (fig. 4) appears to have been constructed in the early third millennium BCE, and was described as the world's earliest paved road (Harrell and Bown 1995; Shaw 2006: 253). The road, 2.4 meters wide, was paved with slabs of sandstone and logs of petrified wood (Shaw 2006: 255). Another

early paved road was constructed to link quarries at Abusir to the Fifth Dynasty pyramids about 1.2 kilometers away. This more-substantial road was approximately ten meters (or 20 cubits) wide, built on a 30-centimeter-deep bed of mud-brick and local clay, and finished off with a paving of field-stones mortared together with clay (Werner 2005: 535 - 536).



Figure 4. The road from Widan el-Faras to Qasr el-Sagha in the Fayum.

Although road surfaces were not often paved along their entire route, stone fill at least may have been used to even out the surface of a path; one example comprises the stone causeways constructed on a 17-kilometer route linking Amarna and Hatnub (Shaw 2006: 254). Over relatively short distances, reinforced and stabilized tracks for hauling heavy loads of stone to pyramid construction sites were laid using heavy wooden members from derelict ships, then covering them over with limestone chips and mortar (Haldane [Ward] 1992: 104). In other cases, roads might simply consist of a track systematically cleared of gravel and debris, and marked with stelae, cairns, and campsites. Among the most impressive of these early roads are two routes that appear to begin near the Mastaba el-Faraun at Dahshur and lead to the northern and southern Fayum, respectively. These routes were discovered in 1887 by Petrie (Petrie 1888: 33 - 36; cf. Graeff 2003), who reported that each is remarkably broad—on average more than 25 meters in

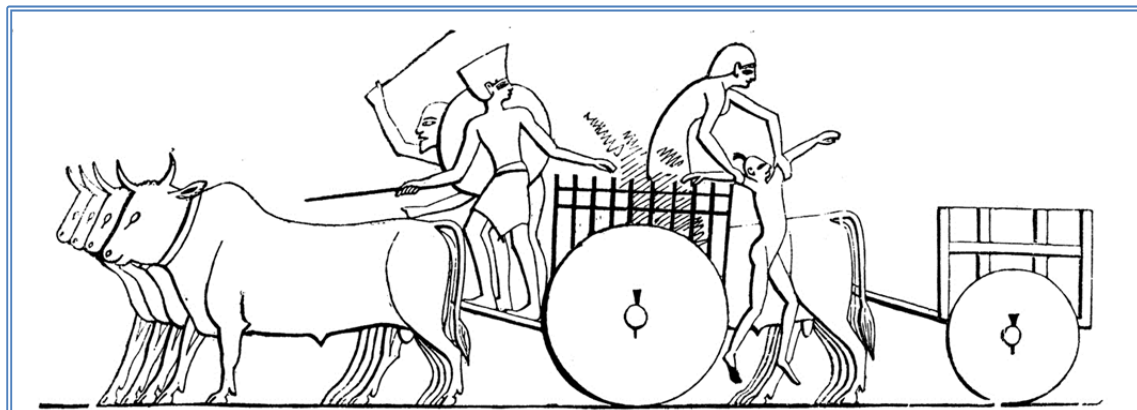


Figure 5. Cart of the defeated Tjeker, from a war scene in the temple of Ramesses III. Medinet Habu.

width—marked along each side with mounds of rubble that had been swept from the road surface, which is otherwise unpaved. The more southerly road is also furnished with distance markers, regularly placed at intervals of about 3.3 kilometers.

Donkey and, later, camel caravans seem to have been the preferred mode of transport for goods along roads and tracks, as Pharaonic texts such as Harkhuf's autobiography and the *Tale of the Eloquent Peasant* suggest (Lichtheim 1973: 169 - 184), and as archaeological evidence—for example, the donkey hoof-prints from the Toshka gneiss-quarry road mentioned above—shows. The period in which the camel was introduced into, and domesticated in, Egypt remains controversial. Most faunal, iconographic, and textual evidence points to a date sometime in the first millennium BCE (Rowley-Conwy 1988), but some have argued for an introduction of the camel as early as the Predynastic Period (Ripinsky 1985). The question is complicated because faunal or iconographic evidence for the presence of camels does not necessarily prove camel domestication (Adams 2007: 50 - 51).

The Egyptians of the Pharaonic Period did have at least some wheeled vehicles. Most evidence for these comes from depictions or archaeological remains of chariots, which appear for the first time at the very end of the Second Intermediate Period and then come to

be common military and royal vehicles in the New Kingdom (Littauer and Crouwel 1985: 96ff.; see also Herold 1999, 2006). The use of carts for basic transportation in the Pharaonic Period is much harder to trace, either archaeologically or iconographically, but at least one Eighteenth Dynasty Theban tomb-relief fragment (probably from TT 125) does show a wheeled cart or wagon drawn by oxen in an agricultural scene (Aldred 1956). Whether the dearth of parallels to this scene shows that such carts were only rarely used in Egypt (so Aldred), or whether the motif was not taken up in other tombs simply because it was not part of the traditional iconographic vocabulary of agricultural scenes, is difficult to say. Supply carts are also shown in reliefs accompanying the account of Ramesses II's battle against the Hittites at Kadesh (Partridge 1996: 139), but of course the venue here is not Egypt proper. A cart drawn by four oxen in the middle of a war scene of Ramesses III's account of the defeat of the Tjeker would similarly suggest the vehicle's foreign origin (fig. 5). Wheeled vehicles from earlier periods are rare (Littauer and Crouwel 1985: 96 with nos. 3 and 4). As noted above, they became common in Ptolemaic and Roman Egypt (see in general Adams 2007: 49 - 69).

One other vehicle used in Egypt, at least by the ruling and aristocratic classes, was the carrying chair. Carrying chairs appear in the First Dynasty, and images of aristocrats or rulers being carried in such vehicles—some

(especially royal models) exceptionally elaborate—can be found throughout the Pharaonic Period (Vandier 1964: 328ff). Evidence for the use of these chairs beyond the Pharaonic Period is not commonly encountered, but carrying chairs certainly continued to be used—or at least remembered—into the Ptolemaic and Roman Periods. A carrying chair figures in the Ptolemaic *First Tale of Setne Khaemwas*, in which

the character Setne (following his hallucinatory sexual encounter with the femme fatale Tabubue) encounters a “pharaoh” (actually a manifestation of the dead Naneferkaptah, from whose tomb Setne had stolen the magic book that is at issue in the tale), who is being carried on such a chair by his entourage (Ritner 2003: 466; Lichtheim 1980: 135).

Bibliographic Notes

For a general introduction to transport in Egypt, although written for a popular readership, see Partridge (1996); for overland transport in the Roman Period specifically, see Adams (2007). For boats and ships as used on the Nile River and at sea, see the *UEE* entries Vinson (2009 and 2013). Land transportation and routes in Egypt are increasingly becoming the objects of intensive study; the works of John Darnell (2000 a and b) make a good starting point. Important early studies of land routes include Gardiner (1920) (the “Way of Horus”) and Edel (1955) (the oasis roads reflected in the *Autobiography of Harkhuf*). For roads in general, see Shaw (2006). Good general overviews of the use of and evidence for wheeled vehicles can be found in Littauer and Crowell (1985) and Herold (1999 and 2006). See also the *UEE* article on travel (Köpp-Junk 2013).

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- Figure 1. Transportation of a quarried block on a sledge drawn by oxen. (CG 62949; Wilkinson 1854, Vol. 2: 306.)
- Figure 2. Transportation of a colossal statue from the quarries. Tomb of Djehutihotep, Deir el-Bersha. (reproduced as a wood cut, Wilkinson 1854, frontispiece to Vol. 2.)
- Figure 3. Relief depicting the specially designed barges transporting Hatshepsut's obelisks. Deir el-Bahri. (Naville 1908: pl. 154.)
- Figure 4. The road from Widan el-Faras to Qasr el-Sagha in the Fayum. Photograph by Willeke Wendrich.
- Figure 5. Cart of the defeated Tjeker, from a war scene in the temple of Ramesses III. Medinet Habu. (Reproduced as a woodcut: Wilkinson 1854, Vol. 1: 392.)