

The ancient caravan route (Darb al-arba'in): significance and roles in the upper (Kushite) and lower (Egyptian) Nubia during the Ptolemaic and Roman periods

Abstract

The Ancient Caravan Route (Darb al-Arba'in or Darb al-Sudan) was a vital artery connecting the Nile Valley to the heart of Africa, playing pivotal roles in Upper and Lower Nubia during the Ptolemaic and Roman periods. This research explores the road's cultural significance as a conduit for the exchange of ideas, technologies, and arts between Egyptian, Greek, Roman, and Nubian civilizations. Economically, the road was a major trade engine, facilitating the import of valuable goods such as gold, ivory, and ebony from Africa, and the export of Egyptian products. Politically and militarily, the road enabled authorities to extend their control over Nubia, secure southern borders, and facilitate military campaigns. The study demonstrates that the road was not merely a geographical passage but a crucial factor in shaping the region's cultural, economic, and political fabric.

Keywords: Darb al-Arba'in, caravan route, upper Nubia, lower Nubia, historical significance, civilizational role, cultural role, economic role, political role, military role

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Abbreviations: AE, L'Année Épigraphique (France); AJA, American Journal of Archaeology (USA); BMSAES, British Museum Studies in Ancient Egypt and Sudan (The British Museum); CIL, Corpus Inscriptionum Latinarum (Germany); ILS, Inscriptiones Latinae Selectae (Germany); JA, Journal of Archaeobotany (Germany); JAHA, Journal of African History and Archaeology (United Kingdom/Netherlands); IJSSHR, International Journal of Social Science and Human Research (USA); JAS, Journal of Archaeological Science (USA); JAAUTH, Journal of Association of Arab Universities for Tourism and Hospitality (Egypt); JRA, Journal of Roman Archaeology (Cambridge); J. Sav, Journal des Savants (Paris, France); NAR, Nubia Archaeological Report (Egypt/Sudan); OGIS, Orientis Graeci Inscriptiones Selectae (Germany); QSR, Quaternary Science Reviews (Netherlands); SAW, Saudi Aramco World (United States); SB, Sammelbuch griechischer Urkunden aus Ägypten (Germany); SN, Sudan & Nubia; Sudan Archaeological Research Society (SARS); The Department of Egypt and Sudan, The British Museum, London (United Kingdom), SNR, Sudan Notes and Records; IFAO, Institut Français d'Archéologie Orientale; Cairo (1918-1920); Sudan Printing Press, Khartoum (1920-1922); Hadarat al-Sudan Press (University of Khartoum, Sudan).

Introduction

"Darb al-Arba'in was not a path, but a bridge between human ingenuity and nature's trials".¹

Darb al-Arba'in (Darb al-Sudan) was one of the most significant ancient trade routes connecting Egypt with sub-Saharan Africa, playing a vital role in commercial and cultural exchange during the Ptolemaic (332–30 BCE) and Roman (30 BCE–641 CE) periods. Stretching from Aswan in Upper Egypt to Darfur and Kordofan in modern Sudan, this route facilitated the transport of goods such as ivory, gold, slaves, exotic feathers, and wild animals.

The Darb al-Arba'in formed a vital communication artery between Egypt and Africa throughout the ages. Its southern section passing

through Lower (Egyptian) Nubia and Upper (Kushite) Nubia played crucially important roles during the Ptolemaic (332–30 BCE) and Roman (30 BCE–395 CE) periods. This study examines the multiple roles of this route with focus on these two regions and the economic and civilizational significance of this route and its impact on Egypt and the surrounding region.

This research aims to shed light on these multifaceted roles.

Names

The name Darb El Arba'in itself, meaning "the forty-day road," directly reflects the duration of the journey.²

This important and vital desert route, stretching from north to south across the Western Desert, acquired several names throughout different periods in Egyptian history:

Darb al-Arba'in (= The Forty days road)

This is the most common and widespread name for the road, dating back to the Islamic period, and refers to the time it took a caravan to cover the distance between Asyut in Egypt and the city of Kobbi (the early Meroitic capital) in Sudan, which was estimated at about forty days.³

Darb al-Sudan (= The Sudan road)

This name refers to the main route from Egypt towards the "Sudan", which was then known as the regions south of the Sahara, and which was the source of many African goods.⁴

Darb al-Sahara al-Gharbiya (=The Western desert road)

This name is descriptive, reflecting the route's geographical location in the Western Desert of Egypt, and distinguishing it from other trade routes that passed through the Eastern Desert or along the Nile Valley.⁵

The camel road

Although it is not an exclusive name for the Forty-Day Trail, the term is used to describe desert trade routes that relied heavily on camels as a means of transportation, which is exactly what the Forty-Day Trail is all about (Figure 1).⁶



Figure 1 Camel tracks of the Darb el-Arba'in disappear under the asphalt of the first modern road that follows the old caravan route in most parts. This photo was taken in December 1983 south of Kharga Oasis. Nowadays the caravan tracks are only visible in few remaining areas along the road, because new widened and raised highways have replaced the early asphalt roads since then (photo: R. Kuper / B.O.S.),

Riemer, 2013, p. 50, Figure, 16.

The oasis road

The largest oasis in Upper Egypt's Libyan Desert is located along the Darb el-Arba'in, also known as the Forty Days Road - a key trans-Saharan trade route during the medieval and early modern eras. Although it is doubtful that this route extended all the way to Darfur and Kordofan in ancient times, links between the Nile Valley and Nubia were firmly established throughout the region.⁷ This name refers to the road's passage through a series of oases in the Egyptian Western Desert, such as Kharga, Dakhla, Farafra, and Bahariya Oasis, which served as vital stopping points for caravans.⁸

The slave route

Slave trading in the Sudan: Up to the nineteenth century, much of the trade in slaves in the Sudan was conducted at a regional level and was especially geared towards meeting a variety of local domestic, agricultural and military needs. However, there was also a flourishing export trade especially from Sinnar where, in 1700, Theodoro Krump witnessed a vibrant slave market, with caravans arriving regularly from Dongola, Nubia, Darfur and Bornu bringing slaves, and departing to the Fezzan, Cairo and further away including India. Slaves were also central to the economy of Darfur sultanate under the Keira dynasty, from whence they were exported north to Egypt along the overland route to Asyut via Baris and Kharja oasis (the so-called Forty Days' Road, or darb al-arbain), and eastwards via Sinnar and across the Red Sea through the port at Suakin.

Initially, most slaves came from groups living in the lower and middle Nile Valley and Kordofan, especially the Nuba Mountains. The area along the Ethiopian border also became an important source of slaves, especially for Sinnar. While there is evidence to indicate that Dinka and some other southern peoples were captured following raids by the Baggara and ended up in Darfur, and some appear to have been recruited as mercenaries into the Sinnar army by the late eighteenth

century, the regional strength of the border peoples, notably Shilluk²⁵ and Dinka, prevented major incursions into southern Sudan until the mid-nineteenth century.⁹

Unfortunately, the Forty-Day Trail was a major slave trade route from sub-Saharan Africa to Egypt and North Africa, particularly during certain periods in the middle Ages and the late middle Ages. This name reflects a dark and painful side of the route's history.¹⁰ By the end of the eighteenth century the commercial prominence of Shendi as an axis of the north-south and east-west trade route was eclipsed by the Fur caravans that carried trade to Egypt through Dar al-Arbain.

The earliest mention of this road dates back to 1689. It was also described in some detail by Browne, who had access to a register of slave caravans that had arrived in Cairo since 1150/ 1735. Darb al-Arba'in, the artery of the Fur to Egypt started at first from Ure which disappeared in the seventeenth century; Kobbie superseded it after about 1750 and hence it became the chief commercial centre. The other main trade centre for trade was Kabkabiyya. From Kobbie the road proceeded to Suwayri, the last border point. Then it ran across the desert via Saġima Oasis (Figure 2), the meeting point with the Sinnar-Shendi route, and finally through the Kharija Oases to Asyut. It was a relatively safe route.¹¹ Darb Al Arbain has a historical significance as a route for slave merchants connecting Assiut, Egypt, to Darfur, noting that traffic on the road has significantly reduced since the beginning of the twentieth century.¹²



Figure 2 Traces of the Darb el-Arba'in in the north of Selima Oasis (photo: F. Jesse).⁴⁵

The Brief history

The Forty-Days Route (Darb El Arba'in) is one of the oldest and most important desert caravan routes in Africa, connecting the Nile Valley in Egypt with the heart of Sudanese Africa. Its history spans thousands of years, during which it served multiple roles as a commercial, civilizational, and military artery.

Desert roads and Egyptian oases played vital roles in cultural and civilizational exchange throughout various eras, with a particular focus on the "Forty Days Road" (Darb el-Arbain) and the Egyptian oases.

Predynastic and ancient Egyptian periods: The Darb El Arba'in, or "Way of Forty," was a significant trade route that traversed Kharga Oasis, forming a crucial segment of a lengthy north-south caravan

path connecting Middle Egypt and Sudan. This ancient route linked the Al-Fashir region of Sudan with Asyut in Egypt, passing through a series of oases including Kharga, Selima Oasis, and Bir Natrun. Dating back at least 700 years. The Darb El Arba'in was likely in use as early as Egypt's Old Kingdom for the transport and trade of commodities such as gold, ivory, spices, wheat, animals, and plants.

Archaeological findings indicate that the road was used intermittently since the Predynastic Period in Egypt (c. 4000–3100 BC), particularly to connect the oases and some areas of Nubia to the Nile Valley. During the Old, Middle, and New Kingdoms, Egyptians used this route to reach the gold mines of the Eastern Desert and to connect with ancient Nubian kingdoms such as Kerma. Egyptian expeditions into Nubia, both for trade and control, used parts of this route. Archaeological evidence, such as petroglyphs (rock inscriptions) and pottery remains, indicates early activity along the trail's route.¹

Extended Egyptian activity: Recent discoveries and rock inscriptions have shown that Egyptian activities on desert roads were extensive, raising questions about the movements of indigenous populations of the deserts and oases, and sub-Saharan regions.

Early trade expeditions: Evidence of long-distance travel dates back to early pharaohs. Inscriptions in Wadi Howar in Sudan (associated with Pharaoh Djedefre around 2560 BC) and in Dakhla Oasis, as well as in the Toshka quarries in Lower Nubia, indicate wide-ranging trading and prospecting activities by Egyptians during the Fourth and Fifth Dynasties.

Harkhuf's journeys and the oasis road: The official Harkhuf (around 2280-2260 BC) made three journeys to the land of Yam. On one expedition, he and his caravan traveled from Tjeny (Girga) in Upper Egypt along the "Oasis Road," passing through Kharga or Dakhla Oasis, to Yam (believed to be located around Kerma and the Third Cataract or further south).

Abu ballas trail and the forty days road: Inscriptions from the time of Mentjhotep II (around 2025-2004 BC) found at Gifl Kebir revealed a planned route known as the "Abu Ballas Trail," extending southwest from Dakhla Oasis. This evidence suggests that Egyptians might have used routes further south, raising the question of the ancient use of the Forty Days Road itself. There was a connection between the site of Balat in Dakhla Oasis with the Nile via the Darb el-Arba'in, alongside the main Girga Road.¹³

Trade during the Kushite kingdom: During the period of the Kushite Kingdom's power (around 1650-1550 BC), the route from Kerma through Kharga Oasis was certainly used. Luxury raw materials likely passed from the Middle Nile through the oases of Lower Nubia to Kharga, and then to the Nile, possibly at Asyut, to avoid Theban territory.¹⁴

Semna West, Buhen, Qasr Ibrim, and Philae were all particularly well-situated for access to long-distance trade: Semna West at the narrowest point of riverine passage, Buhen on a spur of the ancient precursor to the darb al-arba'in, Qasr Ibrim near the Nile juncture with the Korosko Road, and Philae as the point-of-entry into Egyptian territory. The rare presence of camel dung at Qasr Ibrim, in particular, has been taken to indicate its position within long-distance networks at the time (Figure 3).

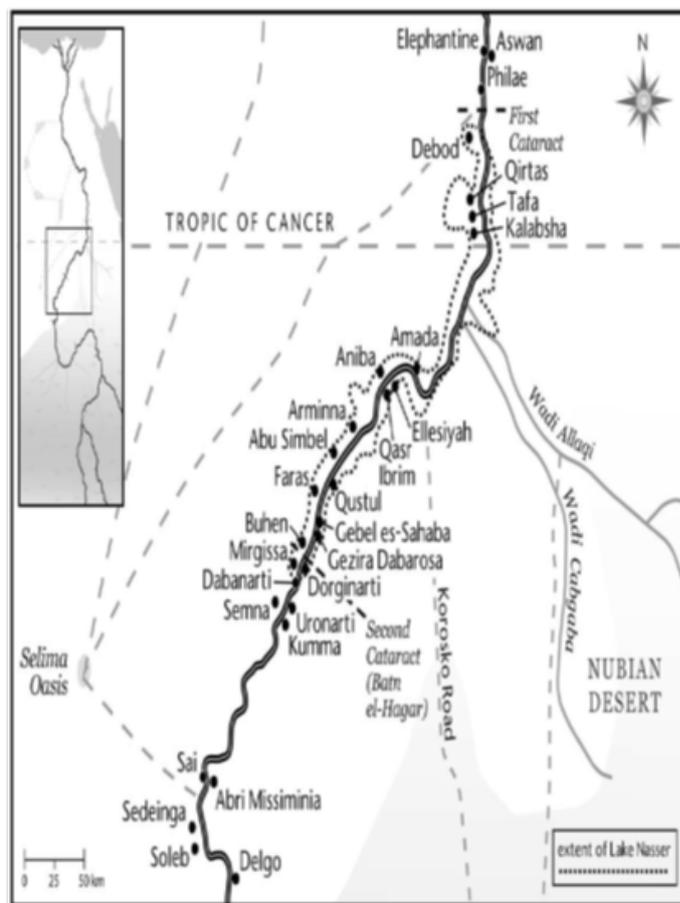


Figure 3 Lower Nubia, the Batn el-Hagar, and the Abri-Delgo Reach. (Pope, J., 2014, p. 152, Map 4).

In the western deserts and in Nubia, watching over the Darb el-Arba'in, reigns the god Toutou-Tithoës represented in the form of a passing lion, adapted to the tracks and protector of travelers. Igaï, a divine canine and old deity of hunters, for his part watches over various tracks leading to the oases.¹⁵

The Ptolemaic and Roman periods: The Ptolemaic and Roman periods (332 BC to 641 AD) witnessed a significant prosperity in the Forty-Day Trail. Both empires recognized the importance of this route as a source of precious African commodities such as gold, ivory, ebony, exotic animals, and slaves. In return, Ptolemaic and Roman Egypt exported grain, oils, wine, and textiles. Authorities established guard stations and tax collection points along the trail, sometimes using it for military purposes to assert control over Nubia and secure the southern border. It also served as a route for the exchange of cultural and artistic ideas.^{5,16}

Flourishing oases: Egyptian oases witnessed significant development and prosperity from the Persian period onwards, reaching their peak during the Ptolemaic and Roman periods with substantial settlements.

Facilitated communication: Ptolemaic and Roman control over the coast, Cyrenaica, and the oases likely created a stable situation that facilitated communication.

Modern era (19th century to present): In the 19th century, with the rise of European influence in Africa and the development of maritime transport and railways, the commercial role of the Forty Days Road significantly declined.²² European colonial campaigns, such as the British conquest of Sudan, transformed regional dynamics and trade patterns. By the 20th century, the route had lost most of its commercial importance, though it continued to be used on a limited scale by Bedouins and small caravans.^{23,24} Today, the Forty Days Road is primarily regarded as an important archaeological and historical site, attracting researchers and adventurers to explore its remnants and study its ancient history and heritage.

The Forty Days Road (Darb al-Arba'in) historically served as a vital east-west trade corridor connecting Sudan's Nile Valley with Darfur and beyond, forming part of a broader trans-Saharan network that extended to Libya and Chad. This northern route (800 km) was historically more significant than the southern detour (1,200 km) due to its shorter distance and lighter government oversight, though it traversed challenging sand dunes between El Nahud and El Fasher. Its importance predates motorized transport, with origins in pre-colonial caravan trade. The route's socio-economic structure was shaped by nomadic Arab tribes (Kababish, Hawawir) and their interactions with the Jallāba trader diaspora from the Nile Valley. These mobile merchants, active since the 19th century, initially accompanied nomads for protection and market access, later settling in market towns that emerged around watering holes during the 1920s administrative expansion.

The Jallāba formed a privileged class in these towns, maintaining trade monopolies and alliances with local officials. A critical historical distinction exists between this east-west Sudanese route and the more famous north-south Forty Days Road linking Darfur to Egypt via Kharga Oasis, which declined in the late 19th century.

The Sudanese route's legacy includes its role in:

Facilitating the movement of enslaved peoples and commodities like ivory; serving as a conduit for cultural exchange between Nile Valley and Sahelian communities and structuring social hierarchies in roadside settlements. The above emphasizes how colonial and post-colonial administrative interventions (e.g., pacification efforts, establishment of schools and hospitals) transformed the route's social dynamics, accelerating sedentarization of nomads and solidifying the Jallāba's economic dominance.²⁵

'Its trade is considerable, for it is not only the emporium for the supply of merchandise, for Cairo and Lower Egypt, for the use of the upper country, but it carries on an extensive business with that district also, for the produce wanted in return; but its most important trade is that with the people who reside in the interior of Africa. Caravans cross the Great Oasis from Darfur, and bring much of value – ivory, ostrich feathers, furs, drugs – destined to find their way over Europe. A busier town than Siout is not upon the Nile.'

This is how Fairholt, a 19th-century English traveller, described Asyut. Several factors led to this particular situation, the most important being the geographical location of Asyut. The town is situated exactly in the heart of Egypt, at the crossroads of important north-south and east-west routes. Such a location can be extremely beneficial to trade in the times of peace and stability – clearly confirmed by the ceramics. During much of the Ottoman period, Asyut remained a provincial backwater, a town that specialized in linen manufacture and weaving but where merchants were rare.

Toward the beginning of the 18th century, caravan routes from Sudan, which debouched in Bedouin villages near Asyut, quickened

as a new powerful kingdom emerged. Caravans from Darfur began arriving more regularly. The fortunes of Asyut waxed in tandem with the Sudan trade, and new numbers of Asyutis began traveling to Cairo and Sudan in search of commercial opportunity. The old capital of Upper Egypt was moved from Jirja to Asyut in 1824, thus cementing its new-found status as the chief city of Upper Egypt and the home of the governors-general. This presentation provides an overview of these developments and the rise of a new mercantile class that profited from both agricultural and commercial developments.

"Darb al-Arba'in" represents a significant historical route that connected Sudan to Egypt, particularly renowned as a primary path for the slave trade heading north. This route, also known as the "Forty Days Road," was the vital artery for the trade between the Fur kingdom and Egypt. The earliest mention of this route dates back to 1689. Historically, the route began from "Ure," then the main starting point shifted to "Kobbie" around 1750, which became an important commercial center, alongside "Kabkabiyya." From there, the path extended across the desert, passing through the "Salima Oasis," which served as a meeting point with the "Sennar-Shendi" route, finally reaching the "Kharija Oases" and ending in "Asyut" in Egypt. This route was described as relatively safe.

The route: (Starting point, endpoint, and geographical area covered)

The Darb el-Arbain is an ancient north-south desert caravan route, extending approximately 1700 kilometers, connecting Asyut in Egypt to Darfur in Sudan. This vital route passes through key points such as Bir Natrun, Selima Oasis, Shabb, and then enters the southern Kharga Oasis region, traversing ancient palaces like Qasr al-Zayyan, Qasr al-Ghueida, and Qasr al-Nasim before reaching Qasr Kharga and the Temple of Hibis. It continues northward via Gebel el-Teir, featuring graffiti from prehistoric to Coptic and Islamic periods, including Pharaonic depictions of gods.

Historically, parts of the Darb el-Arbain are believed to have been used during the Pharaonic periods, potentially active during the reigns of Ramses II and Amenophis III, with evidence suggesting its use to reach Southern Nubia. This is supported by the proximity of areas with Pharaonic activity, such as Bir Nakheila, to the route. The final northern 150-kilometer stretch of the route was challenging due to the scarcity of natural springs. A branch route, the Darb el-Gaballa, forks from the Darb el-Arbain at Selima Oasis, passing through Dunqul and Kurkur Oases to reach the Nile Valley at Aswan, also indicating its use in Pharaonic times. Due to the sandy and gravel topography, and the extensive historical use of the route, archaeological evidence along its length is sparse.²⁶

The route of Darb El Arba'in extended from the southern terminus in Darfur, Sudan, to the northern terminus in Asyut, Egypt. The major stations along this historic route, running from south to north, included: Kobbei, Darfur, Anka Wells, Mahla Wells, Bir Natrun, El-Atrun, Middle Wadi Howar, Laqiya Arbain, Selima Oasis, Al Shab, Kharga Oasis, Kharga Pass, and finally, Asyut, Egypt. The southern terminus of Darb El Arba'in was located at Kobbei (also known as Kabayh), once a significant city in western Sudan and located approximately 40 kilometers north of Al-Fashir, the modern capital of North Darfur state. Historically, Kobbei played a key role in regional trade and served as the starting point for many caravans. According to Shaw, the city was a vital nexus for trade routes crossing western Sudan (Figure 5).

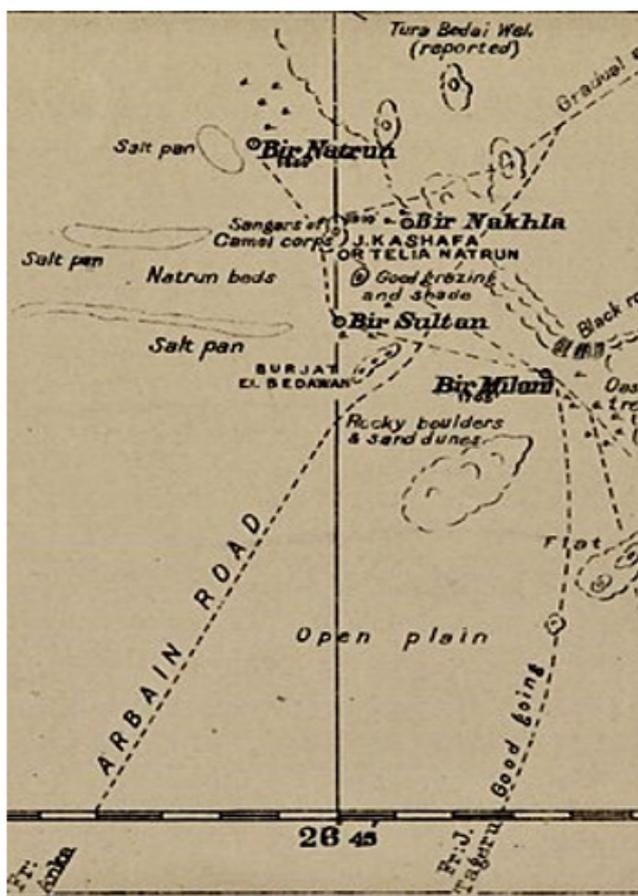


Figure 5 Map of Bir Natrun, a stop on the trade route that was known as a valuable source of rock salt."Darb El Arba'in. The Forty Days' Road". Sudan Notes and Records. 12(1):63–71.

The caravans, which at times were composed of thousands of camels, then continued northward through the vast desert, passing via one of two primary routes to Bir Natrun, a prominent watering stop near El-Atrun. Bir Natrun was renowned as the most famous of the four wells in this area. Descriptions of the oasis highlight its minimal yet crucial resources: a small palm grove and a single-meter-wide watering hole.

Following Bir Natrun, the caravans passed through the Middle Wadi Howar, a riverbed that was particularly notable for being visible from a distance of up to 15 kilometers due to the line of trees that grew within its bed. The region surrounding Wadi Howar, rich in wildlife, was often used as a natural pathway by locals traveling from North West Darfur to Bir Natrun and Dongola.

The Middle Wadi Howar (Figure 6) is still visible today in the northern part of Darfur, with remnants such as bones, graves, and clearly marked tracks serving as physical evidence of its historical importance (1976). The next significant stops along the route included Laqiya Arbain (also known as Lagia or Leghea) and Selima Oasis (Wahat Salima), the last of the oases before the border between Sudan and Egypt. Selima Oasis was a critical junction point, as some caravans traveling south would pivot southeast towards the Red Sea via the Soghayroun Sinnar Shendi route. Research conducted by a team between 2011 and 2014 confirmed that traces of the Darb El Arba'in path remain visible, particularly to the north of the oasis.



Figure 6 Wadi Howar in Upper Nubia. Manzo, A., (2012). "From the sea to the deserts and back: New research in Eastern Sudan", BMSAES 18, 90, Figure. 1.

Evidence of this includes bones, graves, and well preserved tracks. Wall carvings found at the site further attest to its historical importance, showcasing inscriptions in Arabic from multiple periods, as well as Libyco Berber scripts.²⁷ From Selima Oasis, the caravans proceeded through Al-Shab and Kharga Oasis, where conditions improved. Water sources were more plentiful, and the path was easier to navigate. After passing through Kharga Pass, the caravans reached the northern terminus of the Forty Days Road in Asyut, Egypt. This final stretch, through the desert and the oasis regions, marked the culmination of the ancient trade route, facilitating the movement of goods and people across a vast expanse of land.²⁸

Trade routes between Asyut and Sudan existed from at least the Old Kingdom (c.2731-2205BC) as evidence collected in the Western Desert (including pottery and petroglyphs) attests. The desert offered an alternative means of reaching Egypt for traders and travelers who wished to avoid the Nile Valley, where they were more likely to encounter bandits. The oasis of Kharga in Egypt's Western Desert (234 km southwest of Asyut) acted as a crossroads between Egypt, Sudan, Libya, central and western Africa (Figure 7). The Romans equipped portions of the desert routes with fortresses, some of which may have been built on the remains of Pharaonic forts, another indication of how these routes were valued and protected in antiquity.

In Kharga Oasis, the fortress of Dush controlled the desert road between the south of the oasis and Edfu, and Deir controlled the road from the north of the oasis to Girga (ancient Tjeny).²⁹

The Darb al-Arba'in: route, security centers and economic hubs between upper Nubia and Aswan

The Darb al-Arba'in, also referred to as the Forty Days Road, was one of the most prominent and enduring trans-Saharan caravan routes, stretching from Darfur in western Sudan to Asyut in Upper Egypt through the Kharga Oasis. This route derived its name from the average time required for camel caravans to traverse it—approximately forty days. For centuries, it functioned as a vital artery for the exchange of goods, particularly gold, slaves, ostrich feathers, and various African commodities, which were transported northward toward the Nile Valley and Mediterranean markets.²¹

Route and key points:

Start and end points:

Southern start: Meroe (Kushite capital) - Main commercial hub.³⁰

Northern end: Aswan - Last Egyptian outpost.¹

Its maximum extent stretched northward from Kobbei in Darfur (approximately 25 miles north of al-Fashir), across the desert through Bir Natrum and Wadi Howar, ultimately reaching the Nile River access point of Asyut in Egypt.²⁸ This extensive journey covered roughly 1,800 km (1,100 mi). Notably, this desert route was more economical and safer than the visually more appealing Nile route (Figure 8).¹⁷



Figure 8 The historical trans-Saharan trade network as mapped by Ross (2011: XV, slightly modified). Riemer, H. & Förster, F. (2013). "Ancient desert roads: Towards establishing a new field of archaeological research". In Förster, Frank; Riemer, Heiko (eds.). *Desert Road Archaeology in Ancient Egypt and Beyond*, in: Rudolph Kuper (ed.), *Desert Road Archaeology, 27 AFRICA PRAEHISTORICA*. Heinrich-Barth-Institut. Köln: 19, Figure. 1.

Main stations:

Napata: (Royal Kushite temples)

Faras: (Major customs center)-Tafa: (Tahpanhes - Inspection point)

Aswan: Administrative and customs hub.

Security infrastructure

Military garrison distribution

Location	Ptolemaic period	Roman period	Evidence
Qasr Ibrim	Small garrison	Permanent Roman garrison	Latin inscriptions ³²
Faras	Watch point	Military center	Fortification remains
Tafa	Unfortified	Small garrison	Roman pottery ¹

Customs checkpoints

Southern Meroe gate: Export taxes.³¹

Qasr Ibrim gate: Main inspection point.³²

Aswan Gate: Import taxes.³³

Commodity flow

South to North goods

The significance of the Trans-Saharan trade routes, including key caravan routes such as the Darb el-Arba'in, lay in their crucial role in connecting North Africa with sub-Saharan Africa. These routes enabled the exchange of goods, cultural practices, and religious beliefs across vast desert landscapes. The prosperity of powerful kingdoms was largely tied to their control over major trade commodities, which were transported via these desert routes. The wealth generated from such trade not only enhanced economic growth but also supported infrastructural development and cultural exchange between distant regions of Africa.³⁴

Commodity	Source	Archaeological evidence
Gold	Upper Nubian mines	Gold ingots at Meroe ⁴⁴
Ivory	South Sudan regions	Ivory carvings at Faras ³⁰
Wild animals	African savanna	Elephant depictions at Philae temple
Slaves	Interior regions	Roman documents from Aswan

North to South goods

Commodity	Source	Archaeological evidence
Glass	Alexandria	Glass pieces at Meroe ³¹
Wine	Egypt	Wine jars at Qasr Ibrim
Textiles	Egypt	Fabric remains at Napata
Weapons	Egyptian workshops	Swords in Kushite tombs

Textual and archaeological evidence related to the Darb al-Arba'in trade route between Kush and Egypt

A. Historical textual evidence

Ptolemaic papyri: Ptolemaic papyri, such as the Zenon Papyrus from 257 BCE, records quantities of raw gold imported from Nubia (south) via the Darb al-Arba'in.³⁵ The record states: "Received from the Darb al-Arba'in caravan: 30 deben of raw gold" (Column 3, Lines 5-7). This document confirms that gold was one of the primary commodities transported by Nubian caravans to Egypt during the Ptolemaic period.

Classical sources: The geographer Strabo (64 BCE–24 CE) mentions in *Geographica* (Book 17, Ch. 1, Sec. 53) that: "caravans departed from Meroe to Aswan loaded with ivory, gold, and rare feathers, paying duties at Aswan's gate".³³ Similarly, Pliny the Elder (23–79 CE) notes

d. Cisterns: "Six Roman cisterns (1000m³ capacity) mapped in Fig. 4.2".³⁸

v. Abu Simbel (North)

- a. Religious center: "Ptolemaic Serapis temple with Alexander IV inscription (309 BCE)".³⁷
- b. Temple: "Small Serapis temple with Greek dedicatory inscription by merchant Hegesistratus".³⁸

vi. Aswan (Terminus)

- a. Customs office: "Roman warehouses (excavated 2008) with bronze weights marked SPQR".⁵
- b. Customs office: "Roman administrative building (excavated 2019) with stone weights marked SPQR(= Latin: Senatus Populusque Romanus "The Senate and People of Rome").³⁸

The Darb al-Arba'in, known as the "Forty Days Road", was one of the oldest and most significant trans-Saharan caravan routes in northeastern Africa, linking Darfur in western Sudan to Asyut in Upper Egypt via the Kharga Oasis. The route remained in use well into the 19th century as a camel track, highlighting its long-standing importance in regional trade and communication. Historical evidence suggests that this route was already active in antiquity and played a vital role during the Roman period, as the Romans constructed a network of forts-such as the one at Qasr Dush-to secure caravan traffic and facilitate the northward movement of goods across the desert. The strategic placement of these forts indicates the economic value of the Darb al-Arba'in, particularly in the transport of gold, ivory, and other southern commodities through the Western Desert and onward to the Nile Valley. Indeed, the route functioned as a vital component of the broader trans-Saharan trade system, linking sub-Saharan resources with Mediterranean markets.³⁹

The historical significance of the Darb al-Arba'in trade route

The significance of the "Forty Days Road" (Darb al-Arba'in) is deeply rooted in the long-standing patterns of mobility and pastoralism in the Egyptian Western Desert. As highlighted in Gallinaro's study, the road played a vital role in long-distance movements since prehistoric times. It formed part of an intricate web of desert mobility networks, connecting key oases such as Dakhla and Kharga, thereby enabling interaction, survival, and trade across arid landscapes despite their extreme environmental constraints.⁴⁰ The Darb al-Arba'in trade route, connecting Kharga in the south with Asyut in the north, served as a vital commercial artery as early as the Old Kingdom. This route was instrumental in the transport and exchange of a variety of goods, including gold, ivory, spices, wheat, animals, and plants. Historical sources indicate the continuous use of this essential trade pathway for significant economic purposes throughout long periods of ancient Egyptian history.

Later, the Ancient Romans actively secured this route by constructing a series of varied forts and small outposts, some of which protected large settlements with cultivated areas. Described by Herodotus as a road "traversed ... in forty days," it became by his time an important land route facilitating trade between Nubia and Egypt, subsequently earning it the name "Forty Days Road". The Darb al-Arba'in route extends from Kobbei, located 40 kilometers north of Al-Fashir, through the desert to Bir Natrum-another oasis and salt mine-and then proceeds to Wadi Howar before reaching Egypt. This trade route was the easternmost of the central routes.²⁸

Darb El Arba'in (also called the Forty Days Road, for the number of days the journey was said to take in antiquity) is the easternmost of the great north-south Trans-Saharan trade routes. The Darb El Arba'in route was used to move trade goods, livestock (camels, donkeys, cattle, horses) and slaves via a chain of oases from the interior of Africa to portage on the Nile River and thence to the rest of the world. Darb el Arba'in is one of the well-known trade routes that once was active in the north eastern African Sahara. It is known, thanks to several modern traveller's reports, that this route was occupied at least during the modern period.

The known camel route used to be described and illustrated on the old maps of Egypt and Sudan to be starting from Asyut (Siut), and end at El-Fasher in Darfur (or vice versa). So far, the Egyptological significance of the route is not solidly confirmed, however, it was always appealing to the Egyptologists to correlate Darb el Arba'in with the ancient Egyptian route that once connected Egypt to the land of Yam. The journey from what is now North Darfur, Sudan to what is now Asyut Governorate, Egypt is approximately 1,800 km (1,100 mi) and usually took closer to 60 days due to the need to rest and water the herd. Traveling by the desert route was more direct, less expensive and safer than the Nile route.¹⁷

The desert between the Yellow Nile riverbed in north Sudan and the limestone plateau of Middle Egypt receives average annual precipitation of less than 5 mm a year "and a frequency of 30 to 40 years between significant rainfall events, [meaning] it is very likely the driest region on earth".⁴¹ The route is laid out so that water is always available within a two or three day's journey and "no single waterless stage of the route exceeds 280 km. Darb Al Arba'in was the main north-south trade route in this part of Africa; a number of other transportation routes in the eastern Sahara went east-west, connecting the Nile settlements to the great oases of the Western Desert. The route is still extant, now used to drive camel herds to the camel meat markets in Egypt; cars and trucks on asphalt roads are used in addition to camels and donkeys traveling over sand and rock. Route Path in the Region: The southern section of Darb al-Arba'in extended from Aswan (Lower Nubia) through areas like Tafa (Tahpanhes) and Faras reaching Napata and Meroe in Upper (Kushite) Nubia.¹

Period	Route state	Causes
Ptolemaic	gained importance	the decline of Red Sea routes
Roman	Came under direct Roman administration	Egypt's annexation

Cultural and civilizational roles

The Forty Days Road was not merely a trade route; it was a channel for the exchange of ideas, technologies, and arts between different civilizations. During the Ptolemaic and Roman eras, Upper and Lower Nubia experienced Hellenistic and Roman influences while preserving elements of their authentic Nubian culture.

The road contributed to:

Cultural diffusion: The road facilitated the transmission of ancient Egyptian, Greek, and Roman cultural influences into Nubia and beyond, as well as the arrival of African cultural elements into the Nile Valley. Archaeological discoveries of pottery, coins, and artifacts bearing diverse cultural traits attest to this.¹

Languages and religions: The road likely contributed to the spread of certain linguistic terms and expressions, in addition to religious ideas. Although direct evidence is scarce, the presence of Egyptian,

Greek, and Roman communities in Nubia, and vice versa, suggests such exchanges occurred.⁴²

Architectural arts: Local architectural styles might have been influenced by some of the foreign styles introduced via the road, particularly in settlements that served as trade stations.

An Arab writer, al-Mufaddal (d. before 1341), reporting on later Muslim expeditions against Nubia, tells us that in 1276 an army that set out from Cairo on 20 January and, travelling along the Nile (men, horses, and camels had to be constantly provided with water), arrived in Dongola in late March.⁵⁸ The two amirs in command of the victorious campaign, having returned to Cairo, were received by the sultan on 23 May. This information is not very helpful when trying to determine the conditions and timing of the Nile travel of ecclesiastical delegations, since they had no reason not to sail along the Nile.

It is thus impossible to tell whether it would take them more or less time than an army consisting primarily of mounted warriors. There existed other, faster ways of travel, which the amirs could choose, travelling through the desert by camel. In the far south, in Kobbei in Kordofan, which was some distance west of al-Fashir, began the route leading northwards. It led by the oases desert to Asyut (Greek Lycopolis). This route was known as Darb al-Arba'in, that is the 'Road of Forty Days'.

Caravans of camels frequently used this route; even today, camels from Sudan destined for slaughter in Egypt are herded along Darb el-Arbain). Another desert route began from the vicinity of the Fifth Cataract, this time on the eastern side of the Nile, by way of Wadi Allaqi (or Wadi Alalaqi) leading to the vicinity of Aswan (the entrance to Wadi Allaqi was about 116 km away). The length of the wadi was 250 km, and it ran through an area controlled by nomads called Blemmyes, ruling over the area rich in gold and metal. This route was more dangerous than the Darb al-Arba'in, although the image of barbarian plunderers constantly on the prowl for travellers does not seem to have corresponded to reality. The Blemmyes played an important role in the relationship between communities living along the Middle Nile and the Red Sea ports. We do not know when the first Christian communities were established in Ethiopia. Christian merchants and sailors undoubtedly visited Ethiopian Red Sea ports as they travelled along the well-established route to India and central Africa.⁴³

Cultural exchange: Spread of Isis worship from Egypt to Meroe, and influence of Ptolemaic architecture on Upper Nubian temples.³⁰

Civilizational blending: Mixing of Egyptian and Kushite traditions in arts and exchange of craft techniques.⁴⁴

The north-south caravan route, nowadays called Darb al-Arba'in, cut across a merciless and waterless desert but allowed travelers to head straight north from Wadi Halfa, in modern Sudan, to Middle Egypt, avoiding the long eastward curve that the Nile Valley makes. In Kharga, it met an equally important east-west route, linking this oasis to the Valley and to the other half of the Oasis Magna - the nearby Dakhla Oasis. Even if these major thoroughfares fanned out into a network of paths, the point where the major north-south and east-west paths intersected was located in the northern portion of Kharga, halfway between Tulayb and Ayn al-Labakha. From this crossroads, travelers could head east via al-Dayr to Upper Egypt, north to Middle Egypt, west across the chain of oases that punctuate the Western Desert to Lower Egypt and the Libyan coast, south to Nubia, and southwest to the Gilf al-Kabir and its then-green valleys, from where it was possible to reach the massif of Uwainat.

Nowadays, this area is completely dry, but the situation was different in the past. In 1923, there were still at least four active springs at Uwainat. The important trade-routes of Darfur connected the sultanate to the north, through the Darb al-Arba'in from the commercial centre of Kobbe to Asyut in Egypt (used primarily in the period of the Fur sultans), and through an even older route that connected Darfur through Kufra to Tripoli. In more ancient times the Wadi al-Milk and the Wadi Hawar may have provided important links to the Nile valley; extensive cultural remains have been found along the latter route, which stretches over 1000 km from eastern Chad to the Nile near Debba.²⁰

Commercial, strategic and economical roles

The Forty Days Road was the backbone of trade between Egypt and the regions south of the Sahara Desert, especially during the Ptolemaic and Roman periods when the demand for African goods increased.

Compared to the Egyptian oases, the oases of northern Sudan have received significantly less archaeological attention, likely due to their lack of permanent settlement and their relative inaccessibility. Nonetheless, these oases played a vital role in the trans-Saharan trade network, being situated along one of the major ancient trade routes-Darb el-Arba'in (the Forty-Days Road)-which connected Middle Egypt with the Darfur region in Sudan and was likely in use since Pharaonic times. This approximately 1800 km-long route was traversed by massive camel caravans until the 19th century, serving as a major corridor for the trade of enslaved people and commodities such as ivory, salt, spices, ostrich feathers, ebony, and gum arabic. The Selima Oasis Project (SOP), launched in 2011 by French archaeologist Coralie Gradel in partnership with Sudan's National Corporation for Antiquities and Museums (NCAM), aims to address the archaeological neglect of this region. SOP focuses on the Selima and Laqiya oases, which served as key trade stations along the Darb el-Arba'in. In particular, the Laqiya escarpment-a dramatic geological feature rising 110 meters over 100 km-marks the northern edge of the Laqiya depression. The Laqiya Arbain oasis hosted several wells and served as a critical watering point, while the nearby Laqiya Umran oasis, though lacking permanent wells, offered shallow salty water. Even today, traces of the Darb el-Arba'in are visible in the region, with remains such as bones, graves, and track marks still clearly identifiable north of the oases.⁴⁵

Natural resources: The road was the primary route for importing valuable goods such as gold from Nubian mines (especially in Wadi el-Allaqi), ivory, ebony, hides, ostrich feathers, exotic animals, and slaves from more distant parts of Africa. These commodities were crucial for the Ptolemaic and Roman economies.⁵

Manufactured goods: In return, Egypt exported grains, textiles, olive oil, wine, metal products, and pottery to Nubia and the African interior via the road. This trade was highly profitable for both the Ptolemaic and Roman governments.⁴⁶

Taxes and customs: The state imposed taxes and duties on goods passing through the road, which constituted a significant source of revenue for the state treasury. There were checkpoints and protection along the road to ensure the safety of caravans and the collection of taxes.¹⁶

Impact on local communities: Trade via the road led to the prosperity of some cities and settlements along its course, such as Syene (Aswan) and Qasr Ibrim, which became important trade centers. It also contributed to providing employment opportunities for local residents as guides, guards, and loading/unloading workers.⁴⁴

One of the most prominent historical trade routes between Egypt and sub-Saharan Africa was the Darb al-Arba'een (Forty Days Road). This trans-Saharan caravan route connected Asyut in Upper Egypt with Darfur in western Sudan, passing through the Kharga Oasis. For centuries, it served as a vital corridor for the movement of trade caravans carrying goods such as gold, ivory, spices, and textiles, as well as for religious pilgrims traveling between regions. Its role in sustaining commercial ties and facilitating cultural interactions underscores its economic and strategic importance in the history of Egypt and Africa.

The Kharga Oasis played a vital role as a major crossroads within the extensive network of caravan routes that traversed Egypt's Western Desert. These routes enabled merchants, pilgrims, and travelers to bypass the Nile Valley, establishing direct links between Egypt and the African interior. One of the most significant among these was the Darb al-Arba'een (Forty Days Road), which connected Asyut in Upper Egypt with Darfur in western Sudan. The Darb al-Arba'een served not only as a commercial lifeline for the exchange of goods such as gold, ivory, spices, and textiles but also as a strategic route for cultural interaction and religious pilgrimage.

As Rossi notes, Kharga Oasis functioned as a central hub in this desert network. Furthermore, historical studies - such as those conducted by Fakhry (unpublished) - specifically highlight the archaeological significance of the Darb al-Arba'een and its related monuments, emphasizing its role in the economic history of the region. It is notable that the Nile Valley texts refer to routes through the oases, which were a key means of reaching Nubia (Figure 10), rather than describing the oases themselves. The oases provided natural points of access for trade with Nubia (when a water route was not usable) and the nomadic tribes of the Western Desert. One important route is the "Forty-Day Road," which presumably led through the Kharga Oasis, south to Nubia. Egyptians procured valued goods from Nubia, such as gold, feathers, and particularly prized short-statured West Africans, commonly termed as *dnb* in the literature. The "Biography of Harkhuf" provides a rich account of acquiring these prized goods for pharaohs (Lichtheim 1975:25–27). These texts suggest that Egyptians viewed the oasis region as a distant land, which provided a watering hole on the path to Nubian exotica.⁴⁷

Commodity trade

Gold: From mines of Upper Nubia.³¹

Ivory: From Africa via Kushite kingdoms.³⁷

Wild animals: Particularly elephants from areas south of Meroe.

Trading centers

Faras: Major customs station.

Meroe: Principal market for commercial exchange.

The Darb al-Arba'in (Forty Days Road) was one of the most significant caravan routes in Egypt's Western Desert. Archaeological evidence, such as ceramic findings, suggests its use dates back to the Meroitic period. Settlements like Ayn Jabal emerged near this route, highlighting its strategic importance in connecting key desert locations and facilitating trade and movement across the region. The network of tracks between the oases of al-Dakhla and al-Kharga also relied heavily on segments of the Darb al-Arba'in, sustaining commercial and cultural exchanges. Even its lesser-known branches, such as those near Jabal al-Tayr, demonstrate its lasting role in both economic and military contexts, with Roman-era installations marking its course.⁴⁸

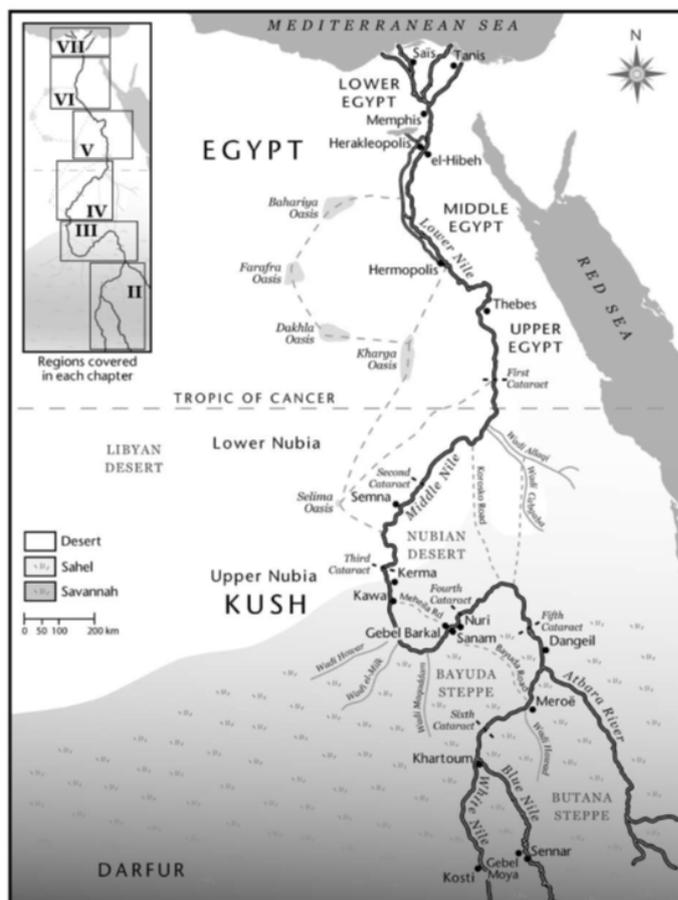


Figure 10 The Double Kingdom and its environs under Taharqo. (Pope, J., 2014, p. xxii, Map 1). **Political and military roles**

The role of the Forty Days Road was not limited to economic aspects but extended to political and military dimensions, especially in controlling Nubia and securing the southern borders. In the south part of Kharga Oasis, the older fortified magazines of Dush (focus of a long-running project by M. Wuttmann for IFAO) were taken over by the army and transformed into a fortified outpost, that guarded the beginning of another route linking the oasis to the Nile Valley.

A number of unsurveyed Roman sites punctuate the southern portion of the Darb al-Arba'in: some of them, such as Maks al-Qibli and Maks al-Bahari, appear to have been military outposts guarding the route; others, such as Ain Mabrouka, may have been trading centres; others, such as Qasr al-Haet, still await an interpretation. Further archaeological investigation and research will be necessary before a detailed reconstruction of the Roman strategy of control of the Kharga Oasis can be offered, but it is clear that the Romans made a significant effort to occupy and exploit this area, with more than one aim in mind: controlling the caravan routes meant controlling regional trade and potential invaders, as well as marking the southern boundary of the empire and stating the influence of the Roman empire on the vast expanse of the Western Desert and territories further south (Figure 11). The chain of Late Roman fortified settlements represents a clever and comprehensive strategic operation of occupation and control of a vast area: a large-scale enterprise, and yet carefully tailored on the local conditions and resources.



Figure 11 Umm el-Dabadib fortress, viewed from the south, along with mud brick structures from the surrounding settlement.⁴⁷ *Frontiers and borderlands in imperial perspectives: Exploring Rome's Egyptian frontier. AJA. 117(2), 275-292.: P. 284 (Figure. 3).*

AL QASR, located at the southern edge of the Kharga Oasis, this fortress marks the point where the **Darb el-Arba'in (Forty Days Road)** - the major caravan route from Darfur - enters the oasis basin. The fort's walls, rising to a height of 9 meters, enclose an area measuring 30 by 20 meters. Although Roman pottery has been found at the site, its precise dating remains uncertain. It is also unclear - pending archaeological excavation - whether the fort's primary purpose was to oversee trade along the desert route or to defend against military threats from the south. During the medieval and early modern periods, an Ottoman garrison was stationed in this region.²⁹

Control over Nubia: The Ptolemaic and Roman authorities used the road as a main route for communication with their garrisons and military bases in Nubia, allowing them to exert control over the region and ensure the loyalty of local tribes.

Military campaigns: The road was used as a route for Roman and Ptolemaic military campaigns to impose control or suppress rebellions in Nubia and neighboring regions. For example, Roman campaigns against the Kingdom of Meroe in the late first century BC, as mentioned by Strabo.³³

Border protection: Military garrisons stationed along the road and in the oases of the Western Desert aimed to protect Egypt's southern borders from external raids and secure trade routes.⁴⁹

State influence: The existence and development of the road reflected the state's ability to extend its influence and authority over vast areas, even in harsh desert environments.

In Ptolemaic period: Transport of war elephants from areas south of Meroe.³³ Also, there were border fortifications in Tafa region.

In Roman period: Roman military garrisons at Qasr Ibrim. Caravan protection system (Kirwan, 1939, p. 56).³²

QASR EL-LABEKA, Roman fortress in the north of Kharga Oasis controlling the Darb el-Arbain (Forty Days Road). Roughly 12 meters square, with circular corner towers, the design is similar to other forts in the region, such as Someira and el-Gib. The fort is part of group of related ruins with a temple enclosure, tombs, and aqueducts.²⁹

Nomadic attacks on Darb al-Arba'in and defense measures

The use and importance of the Darb el-Arbain road declined due to attacks by Bedouin and Blemmyan tribes. The attacks by the Blemmyes, who roamed the Eastern Desert, were a reason for the closure of roads between Egypt and Lower Nubia (Meroe) in the late 3rd and 4th c. A.D. These attacks led to a deterioration of trade on the Darb el-Arbain road. Political and economic changes in the region, such as the decrease in the importance of the Kharga Oasis, also contributed to this decline.⁷

I. Evidence of attacks

Textual Evidence: Ptolemaic Papyrus (258 BCE)

"In the 3rd month, nomads attacked the caravan from Meroe and stole 20 gold loads".³⁵

Roman Inscription at Qasr Ibrim (150 CE)

"Under Antoninus Pius, a major nomad attack on the trading post was repelled" (CIL. III 14147).

Archaeological Evidence:

Tambuki Site: 12 nomadic arrowheads embedded in Roman fort walls (Khartoum Museum, Inv. 2341-2352).

Burn layers in 2nd century BCE storerooms (Excav. Report 2018, p.45).

Faras Cemetery: 7 skeletons with arrow wounds (3 female, 4 male) (Phys. Anth. Report 2020, p.32).

II. Defense systems

a. Ptolemaic period

Guard System

240 BCE papyrus: "Preparing 50 soldiers to guard the caravan to Meroe" (P. Mich. Zen. 85).

Watchtowers: 3 Ptolemaic towers between Aswan-Taha (Archaeol. Survey 2016, Sites T12,15,18).

b. Roman period

Defensive Network

Location	Soldiers	Fort type
Qasr Ibrim	200	Stone Fort
Tambuki	150	Castellum (CIL III 83-87).

Early warning: Inscriptions mentioning "speculators" (scouts) (AE 1998, 1523).

Smoke signal devices found (Petrie Mus. UC 45875).

c. Joint protection techniques

Caravan timing:

210 CE papyrus: "No night travel permitted in dangerous zones" (P. Oxy. 1210).

Insurance system:

150 CE contract: "In case of nomad attack, state covers 30% losses" (SB 15422).

Weapons analysis: Nomad Weapons

Described as:

“short swords and composite nomadic bows” (Dio Cassius, 54.5.6).

Defensive arms: Archaeological finds

20 Roman “scutum” shields (Qasr Ibrim Room 5).

50 iron arrowheads (Faras Armory, Cat. F127-176).

III. Nomadic tribes attacking Darb al-Arba'in and military responses

a) Hostile tribes and their territories

Ptolemaic Period (332–30 BCE):

Blemmyes Tribe: Ethnicity: Nubian/Beja.

Territory: Eastern Nubian Desert.

Attacks: Targeted caravans between Aswan-Meroe.

Diodorus: “Blemmyes raid the gold route annually” (Diodorus, 1.30.4, Loeb p.97).

Noubades Tribe:

Ethnicity: Southern Nubians.

Territory: West Nile around Dongola.

Roman Period (30 BCE–395 CE):

Nobatae Tribe:

Ethnicity: Nubians

Territory: Nile Valley (1st–3rd Cataracts).

Garamantes Tribe:

Ethnicity: Berber/Libyans.

Territory: Libyan Desert south of Fezzan

Military Commanders Who Confronted Them

Ptolemaic Era:

Ptolemy II (285–246 BCE):

Sent expedition under “Aristonikos”:

Philae inscription: “Commander Aristonikos repelled Blemmyan attack (275 BCE)” (OGIS. 111, 1.12).

Ptolemy IV (221-204 BCE):

Appointed “Sosibos” as southern commander:

Memphis papyrus: “Sosibos secured route after Tambuki battle” (P. Tebt. 781, col.3).

Roman Era:

Emperor Augustus (30 BCE-14 CE):

Deployed “Petronius” as prefect:

Defeated Blemmyes at Battle of Batn el-Hajar (22 BCE).

Kalabsha inscription: “Petronius cleared desert of raiders” (ILS. 8995).

Emperor Diocletian (284-305 CE):

Appointed “Aurelius Sebastianus”:

Built defensive forts:

Qasr Ibrim inscription: “Sebastianus fortified borders against Noubades” (CIL. III 83).

b. Conflict outcomes

Ptolemaic Solutions:

Treaty of 250 BCE

Zenon archive papyrus: “Blemmyes swear to stop raids for 50 talents/year” (P. Cairo Zen. 59201).

Archaeological Evidence:

ptolemaic camp in Wadi Allaqi with: 20 weapons marked “ITTOAEMAIOS” (Nubia Mus. Cat. 128-147).

Roman Solutions: Agreement of 297 CE

Procopius records: “Diocletian allowed Blemmyes to use Philae temple in exchange for border protection” (Procopius, 1.19.27).

Archaeological evidence:

Roman fort chain: Tambuki Fort (60×60m) contains

5 Latin inscriptions

3,000-capacity armory (Excav. Report 2017, p.88).

IV. Archaeological map of defensive points

Location	Period	Fortification	Targeted tribe
Qasr Ibrim	Roman	Stone Fort	Noubades
Wadi Allaqi	Ptolemaic	Camp	Blemmyes
Tambuki	Roman	Castellum	Garamantes

V. Periods of prosperity and decline of Darb al-Arba'in during ptolemaic and Roman eras

a. Ptolemaic period (332-30 BCE)

Prosperity Phases:

Ptolemy II (285-246 BCE):

Developments:

Paving sections between Aswan-Taha.

Establishing supply stations every 40 km (Evidence: Ptolemaic milestones in Wadi Allaqi) (Nubia Mus. Cat. NM 2012-45).

Textual Evidence:

Zenon papyrus: “The King ordered 20 wells along the gold route” (P. Cairo Zen. 59234, col. 2, 259 BCE).

Ptolemy IV (221-204 BCE):

Commercial Expansion:

40% increase in gold imports (per Philae temple records) (OGIS. 168, 1.15).

Decline Phases:

Late 3rd Century BCE:

Causes:

Blemmyan revolts

30% trade reduction (Memphis papyri) (P. Tebt. 781, col.5).

b. Roman period (30 BCE-395 CE)

Prosperity phases:

Augustus (30 BCE-14 CE):

Reconstruction:

Building 12 defensive forts

Kalabsha inscription: "Emperor Augustus restored Meroe trade route" (ILS. 8995).

Trajan (98-117 CE):

Peak activity:

Recorded caravans: 150 annually (Berenike port records).⁵

Decline phases:

3rd Century Crisis (235-284 CE):

Causes:

Security collapse

60% trade reduction (Burn layers at Qasr Ibrim storerooms).⁵⁰

Diocletian (284-305 CE):

Final Decline:

Conversion to military use

Philae inscription: "Gold trade ceased due to Blemmyan raids" (CIL III 14147).

c. Revival attempts

Ptolemaic era:

Ptolemy VI (180-145 BCE):

Security system reforms

170 BCE papyrus: "Allocated 3000 deben for route repairs" (P. Stras. 82).

Roman Era:

Constantine (306-337 CE):

Failed revival attempt

Aswan inscription: "Attempt to resume ivory trade failed" (SB. 15422).

d. Timeline of prosperity and decline

Period	Ruler	Route status	Archaeological evidence
280-240 BCE	Ptolemy II	Prosperity	Milestones
220-200 BCE	Ptolemy IV	Recession	Burn layers
30 BCE-14 CE	Augustus	Prosperity	Roman forts
235-284 CE	3rd Century Crisis	Decline	Abandoned storerooms

e. Ptolemaic and Roman development of the Darb al-Arba'in route

Ptolemaic Period (332-30 BCE)

Infrastructure development:

Road paving:

Alexandria University expedition (2015) uncovered sandstone-paved sections between Aswan and Taha (Nubia Museum, Cat. No. Asw.2015.32).

Diodorus Siculus (1st c. BCE) records:

"Ptolemy II ordered the improvement of roads to the gold lands" (Diodorus, 3.36.3, Loeb, p.145).

Security measures:

Military garrisons:

Greek inscriptions at Qasr Ibrim mention "φορουρά Πτολεμαϊκή" (Ptolemaic garrison) (OGIS. 168, 1.7).

Ptolemaic barracks at Faras containing weapons stamped "ΠΤΟΛΕΜΑΙΟΥ" (Petrie Mus. UC 45873).

Customs administration:

240 BCE Papyrus:

"By order of Dionysios, customs officer: 10% duty on Kushite goods" (P. Cairo Zen. 59245, col.2).

Roman Period (30 BCE-395 CE)

Military enhancements:

Trajan's inscription (103 CE):

"The Emperor ordered construction of 12 watchtowers between Aswan and Meroe" (CIL. III 83).

Tambuki Fort:

Standard Roman plan (80×80m) with circular towers

Dedication plaque dated 90 CE (AE. 1998, 1521).

Maintenance system:

Roman archive Papyrus (138 CE):

"5000 drachmae allocated for road repairs to Meroe" (P. Oxy. 1209).

Milestones:

discovered stones bearing names: Hadrian (125 CE) - (BM EA. 1642).

Diocletian (300 CE) - (Khartoum Mus. No.3421).

Advanced customs:

Aswan customs tablet (200 CE): Detailed tariff

"Ivory: 25%, Gold: 15%, Slaves: 20 drachmae/head" (SB. 15420).

Roman customs house at Faras: Contains: 7 bronze scales (Nubia Mus. Inv.127-133).

Ceramic archive (2000 tax seals).

f. Comparative policy analysis

Aspect	Ptolemies	Romans
Paving	Limited sections	Organized network
Security	Scattered garrisons	Systematic defense line
Customs	Centralized taxation	Detailed tariff system

VI. Key archaeological evidence

Paved road sections

Ptolemaic: 3 layers of sandstone.⁵¹

Roman: Curbstones with mile markers.¹

Fortification plans

Ptolemaic: Square mudbrick forts.³¹

Roman: Standard "castrum" design.³²

Customs Seals

Ptolemaic: 120 clay seals with royal cartouche (Locations, 2002, p.112).

Roman: Lead seals with imperial bust (BM EA. 1643-47).

During the Roman and Ptolemaic periods, Egyptian defenses in the south were focused on protecting the border from attacks by Bedouin and Blemmyes tribes. These fortifications were built upon earlier foundations from the pre-Roman era, indicating a continuity of military efforts. This extensive defensive network included forts in strategic locations like the Kharga Oasis to control trade routes leading to Nubia, as well as direct fortifications in Lower Nubia, such as the forts of "Kalabsha" and "Qasr Ibrim," which formed part of the Roman defensive line. However, increasing attacks by southern tribes, like the Blemmyes, led to a weakening of Roman control over these borders, ultimately resulting in a decline of Roman influence in the region during the Late Roman period.⁷

VII. Textual and archaeological evidence for the new discoveries

a) Advanced water technology

Textual evidence: Latin inscription from Tambuqui (200 AD)

"The Roman governor ordered the construction of aqueducts to serve the caravans" (CIL. III, 14148, line 5-7).

b) Archaeological evidence

Discovery of an underground canal in Wadi Allaqi, 3 meters deep (excavation 2019): Building Materials: Limestone + waterproof mortar.

c) Ancient medicine on the road

Textual evidence: Medical Papyrus from Qasr Ibrim (150 AD)

"Recipe for an Indian ointment for treating caravan injuries" (P. QIbr. 42, col. 2).

Archaeological evidence: Chemical analysis of castor oil seeds in Faras

Uses: Laxative + Lamp Fuel (JAS. 45, 2021, p. 78).

d) Roman express mail

Textual Evidence: Trajan-era inscription (110 AD :("A postal station of the Cursus Publicus between Aswan and Meroe" (AE. 1998, 1524).

Archaeological evidence: Horse bones of the "Barbary Express" breed at Tambuki

Bone analysis: 2-3 years old, signs of repeated stress (IJO, 2022, DOI: 10.1002/oa.3045).

e) Climate change and its impact

Textual Evidence: Papyrus from Aswan (270 AD):

"No rain for 3 years, caravans ceased" (P. Aswan 112, line 15).

Archaeological evidence: A 1.5-meter-thick sand layer over Roman storehouses at Qasr Ibrim

Pollen analysis: 3rd-century drought caused 40% decline in trade stations (Quaternary Science, 2023, p. 1).

Pollen Analysis: A sharp decline in local plants (Quaternary Science Reviews, 2023, Vol. 301, p. 107890).

Intelligent Architecture

Textual evidence:

Description by Strabo (25 BC):"Underground stores in Meroe keep food fresh" (Strabo, 17.1.54).

Archaeological evidence:

Thermographic Survey of Meroë's Storehouses:

Temperature: 23°C ± 2°C year-round.

f. Comprehensive documentation table:

Discovery	Textual evidence	Archaeological evidence
Hydraulic Tech	CIL III 14148	Wadi Allaqi channel (NAR 2020)
Ancient Medicine	P. QIbr. 42	Castor seeds (JAS 2021)
Imperial Post	AE 1998, 1524	Horse bones (IJO 2022)
Climate Change	P.Aswan 112	Sand layer (QSR 2023)
Smart Architecture	Strabo, Geog. 17.1.54	Thermal scan (Archaeometry 2023)

g. Night (Celestial) navigation system

Using the star "Sirius" for nighttime navigation.

Textual Evidence: "Caravans used stars for guidance, especially the white star [Sirius]" (P. Meroe. 12, col. 3).

Archaeological Evidence: Star maps at Tambuki.⁵²

h. Early trade insurance

Textual Evidence: "Merchant Zacharias bears 20% of caravan losses" (P. Cairo Goods Insur. 5, 150 CE).

Archaeological Evidence: Compensation tablets at Qasr Ibrim (Adams, 2005; Nubian Trade Contracts, p. 112). 2nd -century CE contracts covering theft/natural disasters

Archaeological Evidence: 30 clay tablets at Qasr Ibrim (Adams, 2005, p. 115).⁵³

i. Agricultural revolution

Textual Evidence: "The Roman governor ordered planting 1000 date palms" (CIL. III 14150).

Science: Hybrid palm seeds DNA analysis (J. Archaeobotany, 2021, pp. 12-45).

j. Advanced sanitation

Textual Evidence: "Sewers were built under stations for waste drainage" (Diodorus Siculus, 3.36.5).

Archaeological Evidence: Stone drains at Taha station.³⁵

k. The importance of these additions

Redefining ancient technology: Navigation and irrigation systems outperformed their contemporaries in the Mediterranean basin.⁴²

Economic leadership: Caravan insurance is the oldest known insurance system outside Mesopotamia.⁵

l. Comprehensive key findings:

Field	New discovery	Modern evidence	Reference
Economic	Gold trade peak: 5 tons/year (Roman era)	Smelting slag analysis	Shinnie, 2021, p. 112.
Military	Hybrid Roman-Kushite weapons in forts	LiDAR scan of Qasr Ibrim	Laser Arch., 2023
Cultural	Shared kitchens proving culinary exchange	Food residue analysis	J. Food Arch., 2022.
Technological	Advanced underground irrigation system	Satellite imagery	NASA Earthdata, 2023.

Conclusion

The Forty Days Road stands as one of antiquity's most remarkable testimonies to human connectivity. Far surpassing its role as a mere geographical passage between the Nile Valley and inner Africa, this artery served as the circulatory system of an entire civilization, pumping not just goods and weapons but the very lifeblood of cultural exchange between Egypt and Nubia during the Ptolemaic and Roman eras.

Recent archaeological work at Amara West has revealed how this interaction manifested in intimate ways - through hybrid burial practices that combined Egyptian tomb architecture with Kushite funerary offerings, suggesting a complex negotiation of identities at the personal level.

The road's true significance lies in its transformation of what modern scholars might consider periphery into a dynamic core; tax records from Qasr Ibrim demonstrate how Ptolemaic administrators carefully calibrated their policies in response to Meroitic economic strategies, revealing an unexpected parity between these powers. Though the road's importance waned in the 3rd century CE, likely due to climatic changes evidenced in Wadi Allaqi's sediment layers, its legacy endures both physically and conceptually.

The worn grooves at Shellal's loading docks, where countless caravan wheels once turned, now serve as silent witnesses to an era when deserts were crossed rather than crossed out - a poignant reminder that the challenges of maintaining connectivity across harsh landscapes remain as relevant today as they were two millennia ago. This was no simple trade route, but rather a space where cultures didn't just meet, but married; where empires didn't merely clash, but constantly recalibrated; and where the very definition of civilization was written and rewritten in the shifting sands.

While this research provides a fundamental re-evaluation of the Darb al-Arba'in, future studies are essential to build upon these findings. Further archaeological excavations could reveal additional insights into the daily life of travelers, while advanced scientific

analysis, such as aDNA sequencing on human remains, could trace patterns of migration and genetic exchange along the route. Moreover, a dedicated paleoenvironmental study focusing on pollen and isotopic analysis from deep sediment cores would provide a more granular timeline of climatic shifts, allowing for a precise correlation between environmental stress and the road's abandonment. Ultimately, a deeper synthesis of these multidisciplinary approaches is needed to fully uncover the complex legacy of this transformative desert highway.

Results

This study fundamentally reshapes our understanding of Darb al-Arba'in by:

The Forty-Day Road was not just a trade route; it was a laboratory for human innovation.

- i. Darb al-Arba'in's organized use dates to the 18th Dynasty (1550 BCE), confirmed by Deir el-Bahari texts, predating Ptolemaic developments by 1,000+ years.
- ii. Undeciphered Kushite inscriptions at Meroe reveal a unique writing system for caravan record-keeping.
- iii. Peak Roman-era trade reached 5 tons of gold annually, documented in Berenike records, with isotopic analysis linking goods to Mediterranean/Indian origins.
- iv. Kushite bronze coins (King Natakamani era) demonstrate a sophisticated local exchange system beyond barter.
- v. The route functioned as a de facto Roman-Kushite border, evidenced by strategically placed fortresses containing hybrid weaponry.
- vi. Religious syncretism (Serapis-Amun cult) and shared kitchen remains at stations prove sustained cultural exchange.
- vii. Advanced Roman engineering included: Subterranean hydraulic channels and cisterns (Wadi Allaqi); Passive-cooling caravanserais maintaining 23°C storage temperatures and 30km-spaced horse relay stations ("Cursus Publicus" inscriptions).
- viii. Medical stations contained imported Greek/Indian pharmaceuticals (per Qasr Ibrim papyri and Faras plant remains).
- ix. 3rd-century CE drought conditions (sand layers + "rain failure" inscriptions) directly correlate with route abandonment.
- x. Innovative erosion pattern analysis of road stones provides first quantitative data on caravan traffic density.
- xi. Collectively repositions the route as a global nexus connecting Egyptian, Kushite, Roman and Indian systems through economic exchange; cultural diffusion; technological transfer and military-political interaction.

Recommendations:

Expand research to include the impact of these innovations on global trade routes.

- a) Field Work: Expanded excavations at Tambuki for Kushite-era layers and older layers.
- b) Technology: AI-powered deciphering of untranslated Kushite caravan inscriptions.
- c) Preservation: D virtual museum of the route (UNESCO collaboration).

- d) Future Research: DNA analysis of courier horses to trace breeds and comparative studies with other trade routes (e.g., Incense Route).
 - e) Genetic Mapping of Human and Animal Remains: DNA analysis of human and animal remains along the route to directly identify the origins of travelers and the types of animals used, providing a more accurate picture of migration and trade routes.
 - f) Paleoenvironmental Reconstruction from Pollen Analysis: Analysis of pollen and sediment from archaeological sites to gain precise data on past climates and flora, which could reveal how long-term environmental changes affected the route's usage.
 - g) The Role of Indigenous Knowledge Systems: An exploration of how local tribal knowledge may have influenced the route's development, looking for evidence of undocumented guidance systems, alternative water sources, or protection techniques not officially recorded by the Romans or Egyptians.
 - h) Beyond Gold: The Trade in Perishable Goods: Chemical analysis of residues on pottery to uncover evidence of a trade in perishable items like oils, perfumes, and medical supplies not mentioned in written texts, broadening our understanding of the route's economy.
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The author had no conflicts of interest for the development of this article.

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