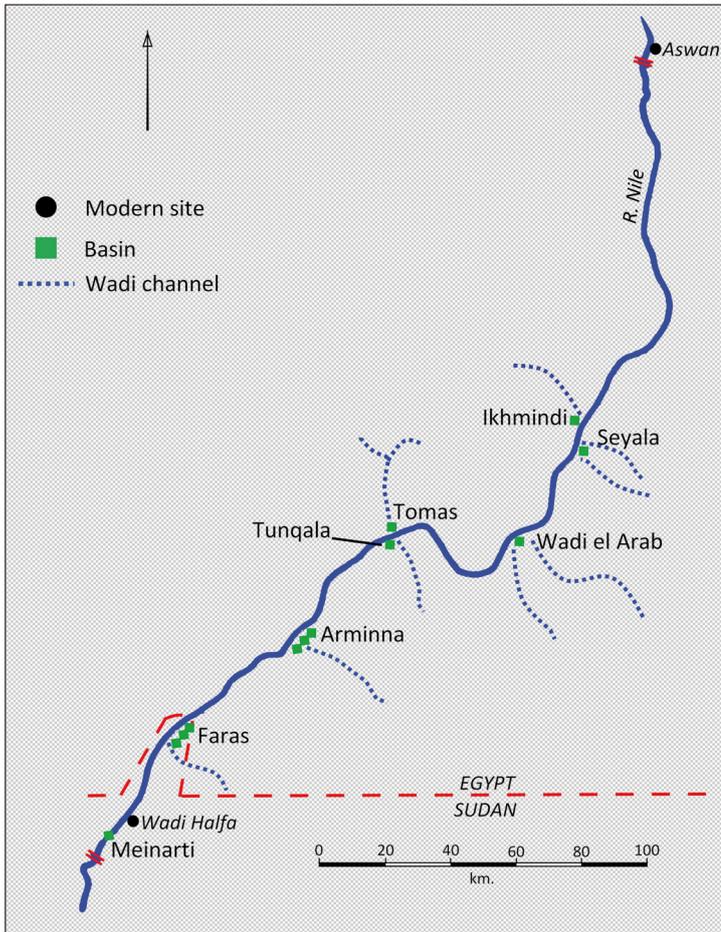




Reconsidering the Lower Nubian ‘Wine-Presses’ and their Leonine Spouts¹

Henry C. Bishop-Wright



Map 1. Sketch map detailing the location of the twelve Lower Nubian basins and their corresponding wadi channels.

The purpose of this paper is to discuss the basins that appear at Meroitic sites in Lower Nubia and the Meroitic Royal City.² These structures have not been adequately debated and the accepted explanation as to their function, that they are ‘wine-presses’, has not been subject to constructive challenge. On the contrary, the explanation that they are the remains of a short-lived Meroitic viticulture industry has been widely

¹ My thanks to Dr R. Morkot and Prof P. Nicholson for critically reading this paper and providing comments and bibliographical references. Their views are not necessarily reflected here, and any mistakes are my own.

² Henceforth, the term ‘basin’ will be used to refer to the entire structure of the so-called ‘wine-presses’ that appear in Lower Nubia and the Meroitic Royal City. ‘Tank’ will refer only to the individual cisterns that make up the basins.

accepted in literature despite the thin state of the evidence (cf. Adams 1966; Bradley 1984a, 206; Edwards 2004, 208; Manzo 2006, 87; Török 1997b, 33; Welsby 1996, 53). The following discussion will present a critique of the accepted function of these Meroitic basins, and offer a detailed consideration of the leonine spouts that are frequently an aspect of them.

I. Catalogue of Meroitic basins

The form of the Lower Nubian basins is summarised elsewhere (Vercoutter 1959, 120-122; Adams 2000, 38). However, for clarity, a short explanation is provided here. Twelve basins have been excavated in Lower Nubia: they are, in all major aspects, of uniform design and of similar dimensions (Map 1). Three tanks are arranged consecutively along a linear axis and are connected by a gutter (Figure 1). The upper tank is connected to the central tank by way of a spout (frequently leonine) and a drop of 0.2m-0.6m. If liquid were to be poured into the first tank, gravity would cause it to flow into the central tank. A gutter, arranged on the longitudinal axis of the structure, then connects the central tank to the lower. This gutter is set at the same level as the rim of the central tank, with the effect that liquid will only flow into the lower tank when the central tank is sufficiently full to allow the surface of the liquid to be level with the connecting gutter. The lower tank has all,

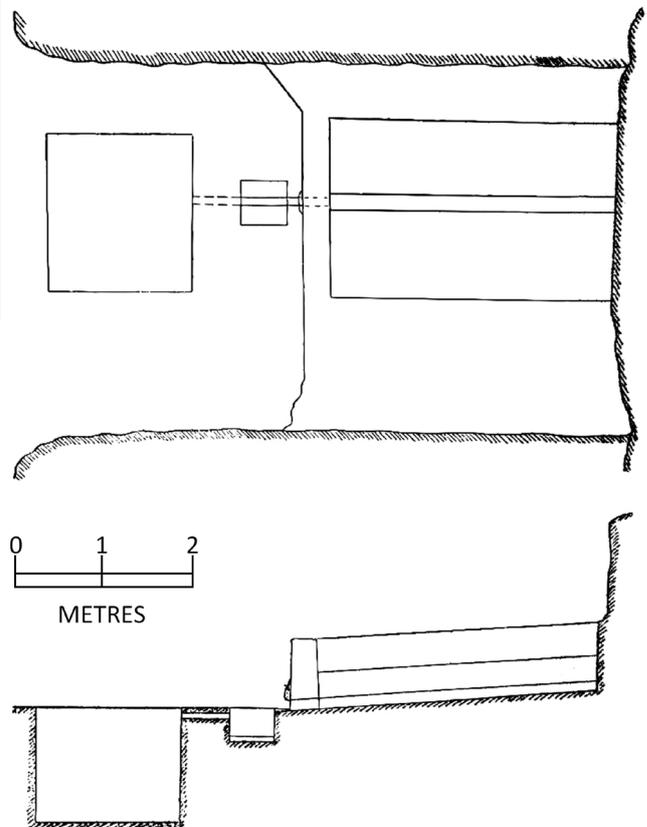


Figure 1. Plan and section of the wine press at Tomas (approximately representative of all twelve Lower Nubian basins). Adapted from Emery and Kirvan 1935, Figure 84.

or a combination of, the following features: a depression in the base, two steps on a long side, and cement-lined walls (usually in a shade of red).

Of the twelve Lower Nubian basins, the majority are rock-cut and constructed away from a settlement. Furthermore, all are within proximity of the Nile, and those at Ikhmindi, Seyala and Meinarti have preserved water channels leading to the uppermost tank. Indeed, the latter has the remains of a saqia well which appears to have operated in conjunction with the water channel (Adams 1966, 266).

The first of the Lower Nubian basins to be discovered was at Ikhmindi (Firth 1911, 12-13). Firth interpreted it as a 'cistern' to which water was added via a saqia or shaduf, and supposed that it was a device with which to water animals (Firth 1911, 13). The outlet of the uppermost tank is described as a carved lion's head, but few additional details are given. Regrettably, no dimensions are supplied but the assumption of later commentators has been that this structure was of the same form as subsequent basins discovered elsewhere between the 1st and 2nd Cataracts.

Following the Ikhmindi discovery, Firth excavated another basin at Seyala (Firth 1927, 213). From Firth's description and illustrations, one can deduce that the Seyala basin was of a practically identical design to that at Ikhmindi (Plate 1). Alongside the standard arrangement of three descending tanks, it too possessed a leonine spout, a saqia channel, and was also identified as a 'cistern' (Plate 2). Firth ambiguously dates his Seyala basin to an 'Ethiopian' period. Yet, it appears to have lacked any dating material and its location within the immediate vicinity of Cemetery 138 (attributed to the Byzantine, 'X-Group' and Christian periods) could be suggestive of a post-Meroitic attribution (cf. Firth 1927, 212).

Three more basins were discovered at Wadi el-Arab, Tomas, and Tunqala (Emery and Kirwan 1935, 108-113). These structures were of the usual three-tank form, and the Wadi el-Arab and Tomas examples had leonine spouts.

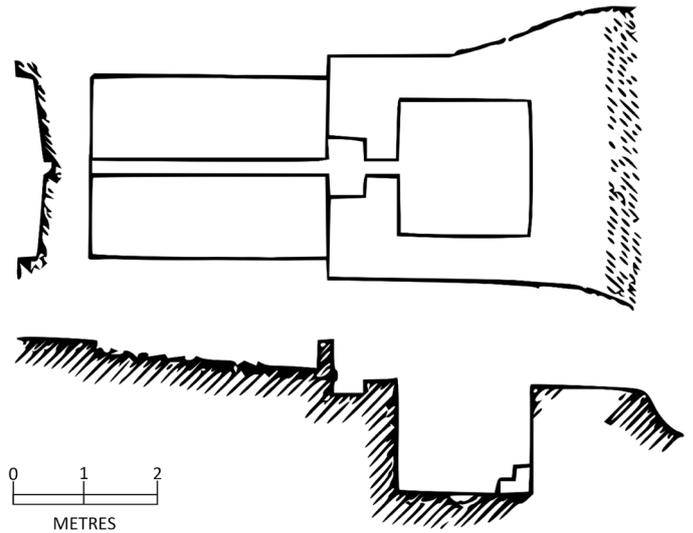


Figure 2. Plan and section of Faras Basin 1. Adapted from Vercoutter 1959, Figure 1.

The only published information on the Tunqala structure was that it was smaller than that at Wadi el-Arab and rock-cut (Emery and Kirwan 1935, 108). Unlike the examples excavated by Firth, these were described as wine-presses and this new interpretation was retrospectively applied to Firth's structures (Emery and Kirwan 1935, 108). Emery and Kirwan's interpretation was accepted by Monneret de Villard (1941, 40-41) and, with the addition of a further 'wine-press' discovered at Kawa by Macadam (1955, 220-221), encouraged Adams (1966) to formulate his authoritative paper 'The Vintage of Nubia', which is now the standard interpretation

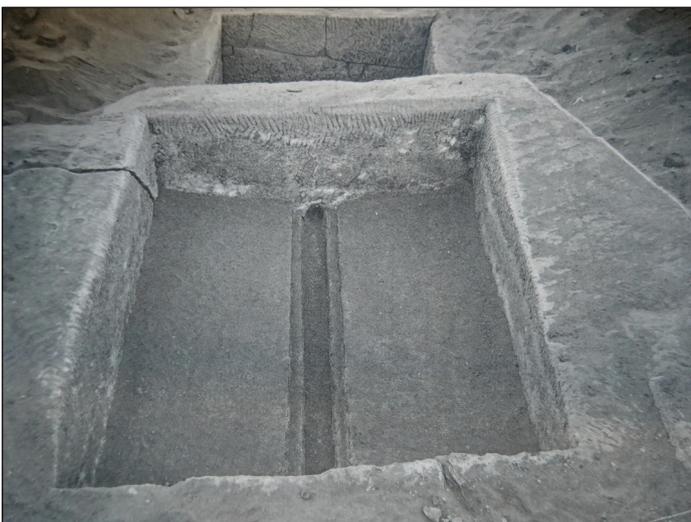


Plate 1. The Seyala basin viewed from the top tank down. After Firth 1927, Plate 16e.



Plate 2. Detail of the leonine spout from the Seyala basin. After Firth 1927, Plate 16f.



of the structures.³ Despite this confident identification by Emery and Kirwan, when two further basins were excavated at Faras East (Faras 1 and 2) they were not identified as wine-presses (Vercoutter 1959, 120). Both of the structures at Faras were of the usual form and one possessed a leonine spout (Figure 2). However, Vercoutter (1959, 125) presents an argument against the wine-press theory and, with reference to a drawing and description of a structure published by Linant de Bellefonds (1868, 28), identifies his structures as ‘gold washing basins’ (Figure 3).

Vercoutter’s ‘gold washing’ theory evidently recommended itself to Simpson when, two years after Vercoutter’s paper, he published a basin of the by now familiar form at Arminna West (Simpson 1961, 95). No dating material was published by Simpson, but the structure was attributed to the Meroitic period by the style of its leonine spout.⁴ We also learn, through a footnote from Adams (1966, 292), that two more basins were excavated by Simpson at Arminna that were not published in his report.

A further basin was found at Faras East (Faras 3), 500m south of Vercoutter’s southernmost basin. No detail as to its function is ventured by the publisher, but it is described as being ‘practically identical’ to Vercoutter’s and its contextual pottery was of ‘a late date’ (Säve-Söderbergh 1962, 103). A leonine spout was either absent or was passed over without comment and no details are provided as to the nature of the ‘late’ pottery. However, it was found in the vicinity of an X-Group tumulus (Säve-Söderbergh 1962, 102-103).

The final basin (Plates 3 and 4) was excavated at Meinarti at the south end of the site (Adams 1965, 163-164; Adams 2000, 38-39). It was first identified as a public bath and then as a wine-press and comprises the usual three-tank design including a leonine spout (Adams 1965, 164. cf. Adams 1966, 271). However, this example possesses two features that are common only with the basin at Wadi el-Arab: it is inside a settlement and it is not carved from the bedrock, but constructed of mud and gravel. Furthermore, the central and lower tanks have an exterior ‘splash gutter’, and it is the only Lower Nubian example to be associated with a preserved saqia well (Adams 1966, 266). It was dated to the late Meroitic period (c. 300 AD) by its stratigraphic relation to the Meroitic settlement in which it is situated (Adams 1965, 150).

This brief overview of the Lower Nubian basins has served to highlight the similarity in form between the twelve edifices. Therefore, it would seem reasonable to support Adams’ (1966, 268) assertion that all the structures are of the same period and served similar, if not identical, purposes. This overview has also emphasised the tenuous state of the dating evidence: of the twelve structures, only four were dated, on inadequate evidence, to the late Meroitic period.

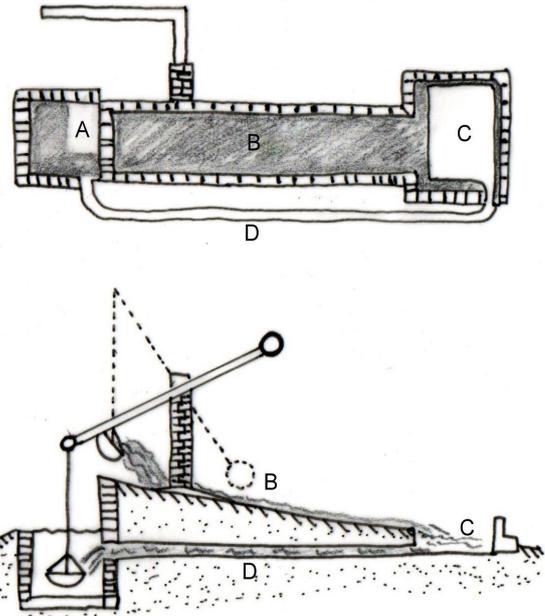


Figure 3. Sketch plan of Linant de Bellefonds’ ‘gold washing table’.
A=cistern; B=sloping table; C=lower basin; D=returning duct
(drawing: H. Bishop-Wright).

What function they served has also been the subject of debate. Reasoned arguments have been made that support their use as water cisterns, gold washing stations, wine-presses and public baths. The evidence for each of these theories will be presented and critiqued below. Before this critique takes place, five further structures from Meroe Royal City will be considered.

The five Royal City tanks have not been discussed within the context of the Lower Nubian examples by other commentators. Four of these structures were published in Garstang’s initial excavations at Meroe yet, despite distinct similarities in form, entered into neither Vercoutter’s nor Adams’ analyses of the Lower Nubian basins. The first, Meroe Tank 1 (MT1), was excavated in the vicinity of the Kenisa (‘Church’, M600) by Garstang during his first season at Meroe. It is described, concisely, as ‘a tank of stone decorated at each end with the head and shoulders of a lion’ (Garstang 1910, 69). No further details are given other than that it was found on the same mound as M600. However, the two were not linked stratigraphically and it should be remembered that, whilst M600 is undoubtedly of the Meroitic period, there were other remains in the immediate vicinity that were from a Christian occupation (Garstang 1910, 68; Garstang 1911, 17).

MT2 was discovered in Garstang’s second season at Meroe, during the clearance of the ‘Royal Enclosure’. Garstang (1912, 46) laconically describes the structure (M621) as ‘a bath’ and no further details are provided. Török (1997a, 175) is more expansive and supplies the following details: MT2 consists of a rectangular white coated tank with steps running down one of the long sides, a narrow pediment perpendicular to

³ Macadam’s structure is not wholly comparable to the Lower Nubian basins and its attribution as a wine-press is contested: Macadam 1955, 220-221. cf. Vercoutter 1959, 120.

⁴ The nearest dated remains to this basin was a Christian monastery and a group of X-Group tumuli: Simpson 1961, 94.



Plate 3. The Meinarti basin viewed from the top tank down. Photo courtesy of the SARS Adams Archive, ADA F246.2 / P194.02.

the steps and an oval depression in the centre of the base. The depression, we are told, represents a royal cartouche and Török identifies it as a tank in connection with a Nile inundation ritual. This tank bears a striking resemblance to the bottommost tanks of the Lower Nubian structures: it is the same shape, is also plastered, has a central depression in the base and has steps on one of the long sides. Indeed, despite the lack of upper and central connecting tanks, MT2 is clearly related to the Lower Nubian basins (cf. Bradley 1984b, 283).



Plate 4. Detail of the leonine spout from the Meinarti basin. Photo courtesy of the SARS Adams Archive, ADA F245.10 / P194.12.

MT3 was excavated during Garstang's fifth season at Meroe. It is described as a 2.5m x 2.5m square tank with a staircase in the southeast corner which descended to the base and a water inlet in the northwest side (Garstang 1916, 11; Török 1997a, 201). It resembles the form of MT2 and MT4 and reflects, in miniature, the layout of the central tank in the 'Royal Bath' (M195).

MT4 was situated inside the palatial structure M295 at the south end of the Royal Enclosure. It was described by Garstang (1912, 50) as a stone lined bath with a flight of steps leading down one side to the base. Török (1997a, 162) adds that the sides were whitewashed and that the base had a narrow 'podium' along the south side. As with MT2, Török compares the structure and function of this tank to the Royal Bath.

MT5 was published by Shinnie and Bradley (1980, 64-67) following the Khartoum-Calgary excavations at the Royal City. It was discovered in the uppermost level of Trench A on the North Mound and was initially described as a 'Well/Basin Complex' before being later identified as a wine-press (Shinnie and Bradley 1980, 64-67. cf. Bradley 1984a, 206). It is the only structure south of the Second Cataract that is of identical form to the Lower Nubian examples. The structure consists of three basins joined by gutters and, like the basin at Meinarti, it functioned in conjunction with a saqia well. Bradley compares it to the Lower Nubian basins (identified as wine-presses) and, in conjunction with a lack of evidence for imported amphorae, suggests a 'vintage of Meroe' (Bradley 1984a, 206). She also asserts that this wine of Meroe was manufactured with locally grown grapes and was encouraged by the cessation of trade with Upper Egypt. In the archaeobotanical analysis of Trench A no grape seeds were found (Bradley 1984a, 207).

II. The function of the basins

Since Adams and Vercoutter suggested either a gold washing or wine-pressing function for the Lower Nubian basins, a further structure has been found at Meroe which is almost identical in form (MT5). Furthermore, in this discussion four other tanks are considered within the same group (MT1-4). Since the evidence has now changed, it would be well to reassess the function of these structures. Thus, the following section will critically evaluate the theories that attempt to identify the basins as water cisterns, gold washing stations, baths, or wine-presses.

Water cisterns

Firth interpreted the Ikhmindi basin as a cistern, which was supplied by either a saqia or *shaduf*, and fed by way of a water channel of which the stone foundations were preserved. Firth reasoned that, despite the basin's proximity to the Nile, it would have been necessary to raise water into a cistern because the river was inaccessible at this point. He also suggested that in antiquity there was a house next to the basin, which utilised the structure for watering animals (Firth



1911, 13). However, there was no archaeological evidence for such a house and the statement was supposition.

The same cistern theory was applied by Firth to the Seyala basin, which was also close to the Nile and was suggested to have been fed by a well. No mention of a steep river bank was made, and it must be assumed that Firth identified it as a cistern based on his observations at Ikhmindi.

Without considering the ten other Lower Nubian basins, the water cistern theory has clear problems: why water animals in an area of land where the river is inaccessible? Why go to the immense effort of carving out three ornate tanks from the sandstone bed rock for the purpose of a cistern when one tank would have sufficed? Why decorate an essentially utilitarian structure with an ornate leonine spout? It would also seem bizarre to build two separate structures, let alone twelve, to such an exact design for as mundane a task as providing the resident herds with a trough to drink from! Indeed, the twelve Lower Nubian basins were built to such a specific blueprint that it is improbable that they were used for different purposes. Thus, whatever their purpose was, it must have been specialist enough to warrant the need for such structural uniformity. Therefore, if it can be agreed that all the structures, including at least MT5, served the same function, then the cistern theory must be abandoned in favour of an explanation which supports either a highly specialised function or a ritualistic function. Both options would explain the uniform and ornate design of the basins.

Gold washing stations

Whilst Firth's assertion that the structures were cisterns is unlikely, it has served to highlight the importance of a water supply to the basins: all the Lower Nubian examples were close to the Nile, three had preserved saqia channels, and both MT5 and the Meinarti basin had the remains of a well. Vercoutter stresses this evident reliance on water and suggests that the basins were for the purpose of gold washing. It is pointed out that all the basins were in a region rich in gold mining, south of the Wadi Allaqi, and that several of the examples lay at the mouth of wadi channels (Vercoutter 1959, 126). After discounting the possibility that these were wine-presses, Vercoutter compares the Lower Nubian structures to Linant de Bellefonds' (1868, 29) desert edifice.

Linant (1868, 29) ventures no date for his structure but asserts that it was used for mineral processing. The main feature of his structure is the shallow sloping table (B) that runs from the point where water is introduced, through to Tank C. From here the water is recirculated to Tank A, where it is picked up by the shaduf and reintroduced to B. As per Diodorus Siculus' (Oldfather 2007, 3.14.1-3) description of gold washing, the raw gold ore is rubbed and washed on the sloping table and the heavy particles sink to the bottom whilst the lighter earthy matter is washed away.

Vercoutter (1959, 122) uses this example to identify the Lower Nubian structures as basins for the same purpose: the sloping upper tank corresponds to 'B' on Linant's design and

both have a ready water supply. Vercoutter (1959, 128-153) then reasons that, due to the well-documented evidence for New Kingdom gold working in Lower Nubia, it is logical to assume a similar gold industry in the Meroitic period.

Leaving aside the proposed structural similarities between Linant's basin and the Lower Nubian examples, both Linant and Vercoutter make an error in their descriptions of how the structures worked. Neither stress the importance of multiple workings of the gold ore and the backflow of water. For gold washing to be effective the process must be repeated several times and the water in which the 'rubbing' has taken place must be recycled or separated from the sediment lest gold ore is lost (Klemm and Klemm 2013, 17-18). If an ethnographic example might be permitted, the 19th century process of gold washing by the inhabitants of central and southern Kordofan involved up to eighteen washings of the same ore (Dunn 1921, 140). The process was completed using two hollowed-out gourds and after each washing the sediment was allowed to settle before being decanted into the empty gourd and washed again.⁵

This example from Kordofan emphasises the importance of re-working the same material. Linant's structure would have been well suited to this purpose: its whole design centres on its ability to recycle the same sediment bearing water and reintroduce it to the rubbing table. However, no such system is described by Vercoutter for the Lower Nubian basins. Instead, he explains that recycling the water was not necessary, due to the basins' proximity to the Nile (Vercoutter 1959, 126). Thus, Vercoutter's description of the functionality of his structures fails to convince as they would not have been able to process the gold ore adequately.

Even if the water was collected from the lowest tank and reintroduced to the sloping upper tank, most of the sediment would have been lost in the central tank. The design of the Lower Nubian basins is such that if the liquid introduced to the uppermost tank bore heavy sediment it would be separated out in the central tank and only liquid would flow into the lower tank. This design could still be applied to gold washing if it were argued that the sediment was manually removed from the central tank and reintroduced to the upper tank. Indeed, this could perhaps explain the presence of a depression in the base of the central tanks at Wadi el-Arab, Arminna, Faras and Meinarti: it would have aided the removal of sediment. Yet, this argument renders the lowest tank obsolete.

Adams (1966, 169) presents further objections to Vercoutter's theory, namely that the gradient of the top tank is too steep to settle gold particles and the plunge into the central basin would hinder the separation process further. Considering both Adams' objections and those forwarded in this paper, there is no way to adequately explain the design of the structures for the function of gold washing. In addition, unlike Linant's structure, the Lower Nubian basins are not

⁵ Simple gold washing is still in practice in contemporary Sudan (Klemm and Klemm 2013, Fig. 6.237)

located near to mineral resources. On the contrary, they are on the banks of the Nile away from the mining areas located up the Lower Nubian wadi channels. Additionally, assuming that the basins are of a Meroitic date, there is no convincing evidence for systematic gold mining by Meroe in Lower Nubia (Klemm *et al.* 2002, 219). Indeed, the gold lands of the Wadi Allaqi lay largely in the Ptolemaic or Roman controlled Dodekaschoinos, yet no basin structures have been found in this region: they are all located south of Maharraqa. The evidence, such as it is, for gold processing in post-New Kingdom Nubia suggests that it took place on a small scale with simple grindstones, not purpose-built systems of tanks.⁶

There are clear problems with the use of the gold washing theory to account for either the Lower Nubian or Meroe Royal City basins. Consequently, in this paper it, too, is abandoned as an explanation.

Baths

In a rejection of the two previously suggested functions of the Lower Nubian basins, Adams (1965, 164) first identified his structure at Meinarti as a ‘public bath’. The evidence for this assertion was tenuous and evidently not deemed strong enough by its author as it was soon rejected in favour of the wine-press theory (Adams 1966). This initial identification was inspired by the modern Nubian use of the term *hammaam* (‘bathroom’) to describe the structures, the ‘splash gutters’ surrounding the two lower basins, and the leonine spout which called to mind the ‘Royal Bath’ at Meroe (Adams 1965, 163-164). The identification of a ‘bath’ was also applied, with no explanation, by Garstang to MT2 and MT4.

The idea of a ‘public’ bath should be rejected immediately on the simple grounds that ten of the twelve Lower Nubian basins were apart from settlements and it is unlikely, therefore, that they were meant for regular public use. The term ‘bath’, if understood entirely by its utilitarian meaning, should also be rejected as it fails to explain the complex three-tank design of the basins: if the structures were meant purely for the purposes of washing, then one tank would have sufficed.

If the idea of baths for private use were introduced then the ten Lower Nubian structures which were not in settlements could be explained: as suggested by Firth, they were simply attached to houses which have not survived in the archaeological record. A similar ‘private function’ could also explain MT1-4 as they were all excavated inside or close to structures identified as private residences. Yet, it is inconceivable that all archaeological evidence for an adjoining house to the ten separate Lower Nubian examples was completely destroyed or missed, especially considering the relatively good state of preservation of the basins themselves. In addition, a further category of basins, hitherto

undiscussed, which fits the identification of ‘baths’ far better should now be considered.

These alternative structures are equally enigmatic. They take the form of ovoid tanks carved from a single block of stone into the same rough shape as Roman bath-tubs of the Imperial Period. Four such structures have been excavated from Meroe Royal City and one structure, which is similar but of fired-brick, was excavated at Faras. They lack any of the features of the basins which have been described above and have not been discussed within the context of the wider debate by other commentators.

The Meroe Royal City ovoid tanks were, in all cases, connected with a system of plumbing which has been interpreted to have delivered water (Bradley 1984b, 282; Adams 1984, 271). Garstang (1913, 75-78) also suggested that one of the tanks had a system of heating apparatus and duly interpreted it as a caldarium.

The structure at Faras was part of a house complex and was connected with a long gutter by way of a fired-brick pipe (Verwers 1962, 21; Adams 1984, 271; Adams 2005, 42-46). The basic feature of the Faras example is the ovoid tank, which is of a similar form to those at Meroe Royal City. Due to the rarity of this ovoid structure in Meroitic architecture, the present writer suggests that it should be included in the same group.

It has been pointed out elsewhere that the structural differences between the square-form basins and these ovoid tanks is great enough to justify a difference in function (Bradley 1984b, 283). Therefore, logically, the two sets of structures cannot both be ‘baths’. All the ovoid tanks were found inside or directly associated with buildings, they resemble Roman bath-tubs and they appear to have had a water supply. Furthermore, unlike the square-form basins, the design of the ovoid tanks has no extraneous features which cannot be adequately explained by their function as bath-tubs. Thus, until further archaeological work proves otherwise, the ovoid tanks can plausibly be identified as private baths (cf. Adams 2005, 46). However, the objections to the square-form basins also being baths are too numerous for the idea to be further entertained, and their identification as such should be rejected.

Wine-presses

Adams (1966, 278) asserts that, due to Diocletian’s withdrawal from the Dodekaschoinos, Egyptian wine ceased to be imported into Meroitic Sudan. To compensate for this shortfall, vines were grown in Lower Nubia and a small-scale viticulture industry was inaugurated around the fertile wadi mouths. As evidence for this theory, Adams compares the Lower Nubian basins to similar structures found throughout the ancient Mediterranean. However, it should be emphasised that the Lower Nubian basins are unique: there are no identical structures outside of Sudan and no ancient wine-press that has survived in the archaeological record is of the same design.

⁶ Isolated findings of possible Meroitic grindstones have been found on Mograt Island. They are of a similar form to New Kingdom grindstones found at Sesibi and Heimur, see Klemm and Klemm 2013, Fig.2.9. cf. Spence *et al.* 2009, Pl.1; Klemm and Klemm 2013, Fig. 5.246.



Adams (1966, 271) compares the Lower Nubian basins to a structure excavated at the Temple of Pnepheros at Theadelphia. The Theadelphia structure was a two-tank wine-press with a leonine spout connecting the upper tank to the lower. Its function cannot be mistaken as the remains of crushed grapes were found *in situ* beneath associated millstones (Lefebvre 1910, 169). Adams (1966, 271) points out that a leonine spout is also a feature of a wine-press depicted in the wall paintings of the 4th century BC Tomb of Petosiris. He then compares the Lower Nubian basins to several wine-presses from Palestine and suggests that the Lower Nubian basins were wine-presses of a specifically local form (Adams 1966, 272. cf. Ramsey and Bell 1919, 559; Schick 1899, 41-42).

None of the compared structures are of the same three-tank design as the Lower Nubian basins. This can be explained by a brief review of the standard process of ancient viticulture. Grapes were trodden in a vat, the grape juice then flowed from the treading vat through a spout and was collected in a jar. Due to the natural yeast that is present on grape skins and the enzymes and sugars in the juice, the resultant liquid would ferment. Following the fermentation, the jar was either sealed, or the wine decanted into another jar in preparation for storage or transport (Murray and Boulton 2000, 590). Thus, a two-tank wine-press is a logical design: a deep pressing tank leads to a small collecting tank where the juice is drawn off into jars.

The problem with the Lower Nubian basins being identified as wine-presses is, therefore, apparent: there is no explanation for the lowest tank; it would appear to be completely superfluous. Adams' (1966, 275) solution to this is that the fermentation process took place in the bottommost tank of the Lower Nubian basins, whilst the central tank functioned to separate the solids from the juice. The bottommost tank was then apparently covered by a wooden lid, as evidenced by the 'splash gutter' at Meinarti, which functioned as a slot to lock the lid in place (Adams 1966, 275). After fermentation, the wine was drawn off into skins or jars and the tank was cleaned using the steps for entry. The red plaster present on several of the tanks functioned, we are told, to 'harmonize' with the colour of the grape juice (Adams 1966, 276).

There are obvious weaknesses in Adams' argument. To begin, the structural comparisons with other known wine-presses are, upon scrutiny, superficial. The Theadelphia press had only two tanks and there is no evidence that wine was fermented in the second tank as opposed to being drawn off and fermented in jars as per the standard practice. Furthermore, it is difficult to use this structure as a point of comparison because it was clearly repurposed from two rooms in the interior of the original temple at a date that followed the late Ptolemaic or early Roman abandonment (Lefebvre 1910, 169). The press was not a purpose-designed installation; rather it was a structure which made best use of the available space and elements of temple architecture,

namely the leonine spout, to create a serviceable, but not representative, wine-press (Lefebvre 1910, 169).

Similar objections can also be found to the Palestinian presses which Adams presents for comparison. The press described by Ramsey and Bell (1919, 559) was a two-tank construction, both tanks were curved and there was evidence for a mechanical pressing apparatus. Schick's (1899, 41-42) wine-presses were four-tank constructions, again with a mechanical pressing apparatus. The Lower Nubian basins have no evidence of a mechanical press, and they consistently have three straight-sided tanks which, in terms of volume, are of different ratios to either the Theadelphia or Palestinian presses: namely, the central tank is always the smallest. Additionally, the Lower Nubian basins do not resemble the wall painting from the Tomb of Petosiris. The only irrefutably analogous feature is the leonine spout, but as will be seen below, such spouts cannot be diagnostic of wine-presses as they were readily employed on a range of different architectural installations.

Furthermore, Adams' reasoning that the bottommost of the Lower Nubian tanks was used for fermentation is tenuous. It centres on the observation that ceramic sherds have not been found in quantity around the basins. It is argued that this indicates that wine was not being decanted and fermented in jars, as evidence of accidental breakage would otherwise be present (Adams 1966, 274).

The assertion that there was an absence of ceramic sherds surrounding the Lower Nubian basins presents an issue for the wine-press theory as even if wine were produced in these basins and fermented in the bottommost tank, it would still have needed decanting. Adams' theory simply delays the moment of decantation until after the primary fermentation is completed. Thus, the decanting process would still occur and ceramic vessels, for which there is no evidence, would still have been needed. Adams' (1966, 275) answer to this issue is that the majority of the wine was drawn off into skins: a suggestion for which there is no evidence to either support or refute.

Another objection to the wine-press theory is that the 'splash gutter', which is proposed to have formed a niche for the hypothetical wooden lid of the bottommost tank, is only a feature on a third of the Lower Nubian basins (cf. Adams 1966, Table 1). Thus, how fermentation took place in the other six structures is unanswered. The idea that the red coating of five of the basins was to 'harmonise' with the grape juice is also erroneous as red-tinted plaster would appear to have been a standard feature of late-Meroitic architecture (see Bradley 1984a, 205). In addition, as pointed out by Vercoutter (1959, 124), the Lower Nubian basins are markedly undersized for 'wine-presses' and only had a capacity of around 45 hectolitres – less than a quarter of the mean output of an ancient vineyard. Finally, the proposal that a late 3rd century cessation in Meroitic-Egyptian trade was the impetus behind the launch of a Lower Nubian viticulture industry is also questionable. Many of the later graves from

Faras and Karanog that date to this period have yielded imported amphorae from Egypt. Indeed, at Faras examples of the 3rd-4th century 'Kapitān 2' amphorae were recovered from several graves and 3rd-4th century glassware appears in graves at Karanog (Griffith 1925, Graves 66 and 86; Woolley and Randall-MacIver 1910, 73).

The final objection to the wine-press theory is one which Adams affords the least space to explain. If these structures were indeed wine-presses, why did two examples have wells attached to them and why were water channels a consistent feature of the others? Clearly the input of water was a vital element in the regular functioning of the basins. Yet, the only explanation given for this water-bearing infrastructure was that it was utilised in cleaning the tanks and, possibly, to dilute the wine (Adams 1966, 275-276).

Whilst both the dilution and cleaning proposals are feasible, neither adequately explains the effort that was expended in supplying the basins with an immediate water supply. Indeed, if water was only employed for such a secondary purpose as cleaning, why was a 10m well dug at MT5 (cf. Shinnie and Bradley 1980, 66)? Surely, since the Nile was close to all the basins, water could have been transported manually for such incidental tasks?

There are clear issues with the wine-press theory that have not been answered by Adams or by other commentators. Foremost amongst these objections is the role that the introduction of water had in the function of the basins. It is the opinion of the present writer that this is not adequately explained by identifying the basins as wine-presses. Therefore, this theory should not be readily accepted in Meroitic studies. Instead, the question as to the function of the Lower Nubian basins and, at least MT5, should be left open to further debate.

III. The leonine spouts: towards an alternative explanation for the Lower Nubian basins

A consistent feature of the Lower Nubian basins is the leonine spout, which connects the upper tank to the central tank. These are conspicuous because they are the only decorative feature of the basins. Despite this, there has been little analysis of their form and, with one exception (below), the only importance that they have been given is for their possible use as tools for dating.

The single consideration of the leonine spouts is provided by Manzo (2006, 87) who accepts without comment Adams' identification of the Lower Nubian basins as wine-presses and attempts to link the structures to Apedemak. It has already been shown how an uncritical acceptance of the wine-press theory has led to the attribution of a new basin, never considered by Adams, as a 'wine-press' which produced a 'vintage of Meroe'. However, Manzo's acceptance of Adams is more troubling because its conclusion proposes to alter the current understanding of an aspect of Meroitic religion.

Manzo (2006, 87) identifies the leonine spouts of the Lower Nubian basins as linked to the lion-headed god Apedemak. This assertion is made on the basis of a small

leonine spout that was found by Garstang inside M6 (the Temple of Apedemak) at Meroe.⁷ The spout is carved from a single piece of sandstone and features the head and forepaws of a couchant lion with a square hole between the forepaws. Because this object was found inside M6, Manzo associates it directly with Apedemak. He is then able to suggest that the leonine spouts of the Lower Nubian basins and of the Meroe 'Royal Bath' (M195) were also linked to Apedemak (Manzo 2006, 87). Following this, a direct link between Apedemak and wine is asserted. This is evidenced by the Dionysiac sculptures in M195, the acceptance that the basins are 'wine-presses', and examples of clay sealings from Jebel Barkal which bear the image of a lion and an amphora (Manzo 2006, 87-88. cf. Vincentelli 1994, 152).⁸

Objections must be made to Manzo's argument. To begin, he is mistaken in his description of the 'Royal Bath': it contains only one leonine spout and it is of a different form to the protomes. The leonine protomes were not designed to convey water as they were not drilled through (cf. Manzo 2006, 86). Instead, they lined the interior south wall as decorative elements between the water inlets. Nevertheless, as leonine spouts are present on the Lower Nubian 'wine-presses', Apedemak can now, apparently, be linked to viticulture. Unfortunately, this argument is entirely circular. On the one hand, Apedemak is linked to viticulture because his iconography (the leonine spouts) appears on Meroitic 'wine-presses'. On the other, the identification of the Lower Nubian basins as 'wine-presses' is affirmed because they possess the iconography of Apedemak who is apparently linked to the 'Cult of the Grape' (cf. Manzo 2006)!

The analogy between the Lower Nubian basins and the Lion God is also troublesome because the motif of leonine spouts existed in Egyptian and Classical architecture long before there is any evidence for the worship of Apedemak. Lion heads are a standard feature of the *sima* of classical temples, where they functioned as decorative spouts to discharge water.⁹ In Egyptian architecture, leonine gutters are employed on temple roofs to a similar end, and are attested from the Old Kingdom to the Roman Period.¹⁰ The Kingdom of Meroe knew of this architectural feature as it was employed on the guttering of the Lion Temple at Musawwarat es-Sufra (Plate 5). Therefore, there is no reason to associate the leonine spouts of the Lower Nubian basins with Apedemak as they are clearly an inherited feature of Egyptian architecture. That the leonine spouts were influenced by Egyptian architecture

⁷ See Liverpool World Museum no.47.48.212.

⁸ Manzo associates these sealings with wine jars and links Apedemak to wine. However, it is well attested that Apedemak is closely linked to the Meroitic royal family and it is likely that imports from Egypt were a royal monopoly. Therefore, it is logical to suggest that Apedemak was simply part of the royal iconography applied to seals of imported goods and not explicitly linked with wine.

⁹ See Dinsmoor Jr 1974.

¹⁰ For examples see: Sainte Fare Garnot 1937, 75 (Abu Gurab, Old Kingdom); Petrie 1896, 15 (Koptos, Middle Kingdom); Petrie 1896, 22 (Koptos, Ptolemaic); Hölbl 2000, 75 (Dendera, Roman).



Plate 5. The leonine spout on the south wall of the Lion Temple at Musawwarat es-Sufra.

as opposed to Classical styles can be deduced by their form.

The spouts that appear on the Lower Nubian basins are consistently in the shape of a couchant lion viewed frontally with the water outlet positioned between the forepaws. This is analogous to the leonine spouts that appear on Egyptian temples, particularly those of the Ptolemaic and Roman periods. They are also of the same form as the leonine guttering of the Lion Temple at Musawwarat. However, they differ markedly from the lion gargoyles of Classical architecture where only the head of the lion is used, and the spout is positioned in its open mouth. More nuanced comments on the form of the Lower Nubian leonine spouts are difficult as the photographic records are poor. But, several observations can be made.

The Arminna, Seyala and Faras examples display heavily-carved manes that descend in a single flat section below the lion's muzzle and terminate above the forepaws. This style of mane matches those of Meroitic leonine sculptures from the Butana, namely, several examples from the ruins of Basa and the leonine spout from M6 (Crowfoot 1911, Pl.6, Pl.12). The squared hole that forms the spout of the Arminna and Seyala examples also calls to mind the M6 lion. Furthermore, these examples differ markedly from Coptic leonine forms that have been recovered from Lower Nubia (cf. Firth 1927, Pl.16a; Vercoutter 1963, 135).

The Meroitic date, which is suggested by the Arminna, Seyala and Faras spouts, could be refined by the example from Meinarti. The Meinarti spout is clearly of a different style from the spouts of the other Lower Nubian basins: the quality of the carving is finer, the mane is barely visible and is not picked out with carved lines, the water channel is rounded and the head projects forward to emphasise the

three-dimensional form of the muzzle. It also diverges from the spouts of the Lion Temple at Musawwarat, which are roughly carved with widespread round eyes and pointed ears. Instead, it compares closely to the leonine gutters of Egyptian temples of the Ptolemaic and Roman periods. This observation would indicate that either the Meinarti spout is reused from an Egyptian built structure, perhaps one of the Roman period temples of the Dodekaschoinos, or it is not of the same period as the other basins. The former option would suggest that the Meinarti basin post-dates Diocletian's abandonment of the Dodekaschoinos and would mean that, at the earliest, it dated to the 4th century, in which case a Meroitic attribution could not be certain. The latter option, that it belongs to a different period, would suggest that the use-life of these structures was long enough for an evolution in style to have taken place and thus, probably longer than the fifty years Adams assigns them (Adams 1966, 278). In either case, it can be agreed that part of the group is of a Meroitic date no earlier than the beginning of our era and likely, according to the Meinarti spout, *c.* 4th century. The scant dating evidence available from their excavation would seem to agree with this and indicates a late Meroitic or early X-Group date.

Beyond their use as dating tools, the leonine spouts of the Lower Nubian basins might also suggest a function for the structures. Hibbs (1978) has convincingly argued, from a study of eighteen libation tables from the Mendes region, that in Roman Egypt the lion was associated with the Nile inundation. The tables date to the 2nd-3rd centuries, and fourteen possess leonine spouts on the front edge. Hibbs (1978, 154) shows that in Roman Egypt the Nile inundation was dated not by months, but by the position that the sun occupied in the constellations. Furthermore, Plutarch explains that the time of the inundation was recognised as the period when the sun passed through Leo, hence, Egyptian fountains utilised leonine spouts (Plutarch Table-talk, 4.5.2). Thus, the Mendes tables combined their leonine spouts with motifs of fertility, namely frogs, to function as ritual objects associated with the Nile inundation.

It is conceivable that this association of leonine motifs with the inundation existed in Meroitic Sudan. Indeed, the motif of the frog appears in both Meroitic ceramic and plastic art, and that it was associated with fertility and water is demonstrated by Crowfoot's (1911, 15) discovery of an enormous sandstone frog at the base of the Basa hafir. Sculpted lions have also been found in association with the hafirs at Basa, Umm Soda and Musawwarat es Sufra.

At Basa five lions were found lining the bank of the hafir and a further eleven (five of which were in miniature) were found in and around the temple (Crowfoot 1911, 14-16). The hafir at Umm Soda (*c.* 65km south-east of Basa) had no less than seven sculpted lions, and at Musawwarat a single crouching lion was found on the edge of the Great Hafir (Crowfoot 1911, 22; Hinkel 1994, 172).

Žabkar (1975, 62) interprets the leonine sculptures

positioned at the entrances of Temple 300 at Musawwarat, the temple at Basa and the Temple of Apedemak at Meroe as acting as apotropaic guardians. Taking into consideration the aforementioned sculpted lions that guard the hafirs at Basa, Umm Soda and Musawwarat, Žabkar's analysis might be extended to include an explicit link between the apotropaic qualities of the Meroitic lion and water. This link between water and leonine iconography in Meroitic Sudan would then parallel the similar association between the lion and the inundation in Roman Egypt.

That the Meroitic lion was linked not just with water, but more specifically to the inundation is suggested by the decorative scheme of the 'Royal Bath' at Meroe. In the most recent analysis of the so-called 'Royal Bath', Török (1997a, 71) rejects Garstang's identification of a localised form of Roman bathhouse and suggests that the complex was a 'Water Sanctuary'. He argues that it served as the centre for Meroitic rites connected with libation rituals and the inundation (Török 1997a, 73-74). Török (1997a, 75) reconstructs two phases of use for the sanctuary and in the second phase (*c.* 1st century) water was supplied by mechanical means through inlets in the south wall and a leonine spout in the southwest corner. The spout is of the classical gargoyle type with the water jet emerging from the mouth, and lion and bull protomes are positioned to the sides of the water inlets. The leonine features are unusual as both the classical form and the Egyptian protomes are used together. Yet, they were both associated with flowing water and, if Török's reconstruction is followed, with the Nile inundation and libation rituals. This parallels the Nilotic association that the lion carried in Roman Egypt and suggests that in the latter half of the Meroitic kingdom leonine iconography was also connected with the Nile inundation.

Furthermore, Török (1997a, 77) recognises that the forms of the unidentified tanks of the Royal Enclosure (MT2-4) are identical to that of the 'Water Sanctuary' but in miniature: they are all rectangular structures of the same orientation which are plastered to contain water and have steps along one edge. On this basis, he suggests that MT2-4 fulfilled a similar ritualistic function to that of the 'Water Sanctuary' (Török 1997a, 77).

It has also been suggested (above) that MT1-4 are comparable in form to the bottommost tanks of the Lower Nubian basins. Indeed, this was highlighted by Bradley (1984b, 283) who proposed on this basis that the Meroe Tanks were wine-presses. If this observation is accepted, then it must also be accepted that the bottommost tanks of the Lower Nubian basins reflect the form of the 'Water Sanctuary'. The comparison between the Lower Nubian basins and the 'Water Sanctuary' is further emphasised when one considers that both possessed leonine spouts, and both were clearly made to function with water.

As discussed above, the primary objection to the wine-press theory was the obvious link between the Lower Nubian basins and water. It was asserted that the presence of the

water channels, and in two cases wells, connected to the basins was not adequately explained by Adams' suggestion that they merely served to assist with cleaning the 'wine-presses'. Furthermore, all the Lower Nubian basins are on, or are located close to, wadi channels (Map 1).¹¹ It is, therefore, logical that during the inundation period the functioning of the Lower Nubian basins changed as the wadi channels swelled. This was evidently a desirable phenomenon as the basins were deliberately built in these areas. Thus, without considering the leonine spouts, one could reasonably suggest a connection between the Lower Nubian basins and the Nile inundation.

It has been asserted that the Lower Nubian basins are of such a specific design that they must have been either specialised installations built for a secular purpose, or ritualistic installations. By viewing the Lower Nubian basins in isolation, four theories have attempted to explain their function as specialised secular structures (cisterns, baths, gold washing stations, wine-presses). Each theory has, to varying degrees, been found lacking. In response, this paper suggests that the form of the Lower Nubian basins parallels the Meroe structures, and that they should not be considered in isolation but as part of a wider Meroitic architectural koine.

If a structural similarity between the basins of the Meroitic north and south can be accepted, then a functional similarity must follow. The Lower Nubian basins were clearly connected with the wadi channels, their leonine spouts can convincingly be associated with inundation ritual, and they have a structural affinity with the 'Water Sanctuary'. Therefore, it is tentatively proposed that they were not secular structures, but ritualistic installations. These installations were used in conjunction with inundation and libation ceremonies and paralleled the function of the Meroe 'Water Sanctuary'.

If this ritualistic theory were accepted, then it would adequately explain the necessity for the basins' water channels and associated wells. Furthermore, it would provide a new explanation as to why the structures were located close to wadis, and lend additional evidence to the association between the lion and the inundation in the Meroitic kingdom. However, as with the secular theories, it has limitations and should be treated only as a tentative hypothesis with which to encourage further debate.

An intriguing aspect of the ritualistic theory is that it places the Meroitic north and south within a universal inundation-centred ceremonial system and demonstrates interaction with Roman Egypt. Indeed, the evidence suggests that the use of leonine iconography in connection with the inundation was inherited from Roman Egypt and first manifested in the Meroitic south. The proposed late dating for the Lower Nubian basins would indicate that the lion's association with the inundation then diffused to the north from Meroe. This model of classical influence diffusing from the Meroitic

¹¹ Meinarti and MT5 are the exceptions. However, both structures functioned in conjunction with a well, presumably to compensate for their distance from the Nile.



south to the Meroitic north contradicts the accepted model of Meroitic connectivity whereby classical influence filters down from the Meroitic-Egyptian frontier. The implications of this are intriguing and further debate would undoubtedly prove fruitful to Meroitic studies.

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