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The DAE Small Finds: A Centenary Postscript

The four members of the Deutsche Aksum-Expedition team themselves were not particularly interested in the 'small finds' apart from the coins, which were inscribed. They concentrated instead on material within their own expertise, namely inscriptions including the coins (Littmann), the architecture (Krencker) and ethnological artefacts (von Lüpke and Kaschke). Nonetheless, they brought back other interesting fragments, mostly potsherds and small metal, stone and glass artefacts recovered during their excavations and surface surveys, particularly at Aksum, to Germany. They were presented to, and are now held in the Staatliche (formerly Königliche) Museen zu Berlin, Antikensammlung, and published in the final 1913 DAE report (Zahn 1913). All were accessioned following the numbering in the published DAE list under a single museum accession number, 30524[1]. The material of this region was so little known at the time that locally-cited comparanda were limited to the survey publications of Piva (1907) and Dainelli and Marinelli (1912), and the 1906 excavations at Adulis by Paribeni (1908)[2].

None of the four field team members published the small finds. Instead, Littmann turned to Robert Zahn (1870–1945), a Classical archaeologist who had worked in Greece, Italy and the Near East, and had previous experience dealing with archaeological artefacts and a wide-ranging knowledge of the ancient world. Nonetheless, from Zahn's report it is clear that the team had recorded the original findspots of much of the material they had brought to Germany, cited as being from several locations of the DAE excavations including at Enda Mika'el, Enda Sem'on, Ta'akha Maryam, the tombs of Kaleb and Gebre Meskal, and the 'grave of Menelik' (all at Aksum), as well as two objects from the site of Qohaito in modern Eritrea. Some of

[1] See Appendix. This chapter is written without benefit of seeing the material discussed, except as published in the DAE, and so as most scholars over the past century would have been able to study the material presented. I am grateful to Prof. Steffen Wenig for locating this material in the Antikensammlung der Staatlichen Museen zu Berlin and sending me a list of the museum's holdings from their database. The stone gem engraved with two stags (#106a) is not included on this list (see n. 4, below). However, see DAE II: 136 n. 1, where Krencker states it was placed in the museum's Near Eastern section, so may have been allocated a separate accession number, or perhaps it was misplaced shortly afterwards but before Zahn began his study and has since not reappeared. I deeply regret being unable to see the material in person, and hope to do so in future to clarify this and other unanswered queries raised or unmentioned in my text. Twenty coins also were retained by Littmann, and now are part of his *Nachlass* in the *Staatsbibliothek zu Berlin*. Unlike the majority of this scholarly archive, which is otherwise in the *Handschriftenabteilung* of the *Staatsbibliothek*, the coins are in its *Orientabteilung* collection, box K.109 together with a plaster impression of each. The coins (see the article by Peter Kowalewski in this volume), are chiefly of bronze, but at least two are of silver, and two are partly gilded. Two are published in DAE I as Abb. 33 and 35. It is often remarked that gold coins are not found in the Aksumite heartland. Note, however, that the coins found by Sundström at Adulis also include at least one of gold (see below, n. 2) and Paribeni too found gold coins at that site. Von Lüpke, Krencker and Kaschke collected a number of modern ethnographic artefacts, now in the *Ethnologisches Museum Berlin*, which will be published in vol. 3 of this series by Kerstin Volker-Saad. Items collected by von Lüpke privately are now in the collection of his grandson Hans v. Lüpke, Nuremberg and will be published too by K. Volker-Saad in vol. 3.

[2] He does not cite Sundström (1907), who published no illustrations of his portable finds. Sundström describes only some gold and silver coins, and otherwise only mentions (*passim*) finding 'earthenware', tiles, beads in several colours, a handmill, 'highly finished' decorated marble fragments, and undescribed objects of glass, 'painted glass', iron, copper and a 'brass-like alloy', as well as some human bones. Sundström, in fact, cites Littmann and Krencker's *Vorbericht* (1906) for architectural comparanda.

the finds from Ta'akha Maryam were further specified as being found in rubbish (*'Schutt'*), partly in rubbish (*'teilweise im Schutt'*), from the lower layer (*'untere Schicht'*) or even the deepest layers (*'tiefere Schichten'*). Occasionally, too, further detail is provided for other artefact findspots. These specific records are not found amongst Littmann's or Krencker's archives, and must have been amongst the latter's records that were destroyed during the war[3]. The DAE excavations mostly consisted of clearing around existing monuments such as the stelae, or following the visible walls ('wall-tracing') of structures and buildings. Both techniques are clearly indicated on both their photographs and state plans. What is also clear, in the light of subsequent fieldwork, is just how judiciously the team chose material to bring back to Germany for detailed study and publication. Most individual fragments are unique examples of their type within the collection, and the very few duplicated artefacts were not recovered in the same locations[4].

Zahn's publication of the DAE small finds included a full description of each individual artefact, its material, fabric and surface colours, its relevant measurements and an indication of its original findspot. Most also were illustrated with a photograph or as a clear, detailed drawing – and sometimes both – all produced by Theodor von Lüpke, who was a talented artist as well as photographer. In doing so, both men followed and, in drawing detail, even exceeded the standard of their day. In the early 20th century, published ceramics normally were illustrated either in a group photograph or as a line drawing indicating only the exterior outline of the vessel, although important decorated sherds and complete vessels often were illustrated as detailed drawings of their decoration. 'Ordinary' sherds, on the other hand, were rarely retained and even more rarely published at that time. The DAE collection contains virtually no complete ceramics, and the most complete pieces are undecorated.

Of extreme importance, however, is the precise section profile also published for many of the individual sherds, also drawn by von Lüpke. Zahn's inclusion of this last, purely technical aspect of ceramic presentation was a quite unusual feature in archaeological publication at that time, especially for undecorated pieces. The very few section profiles published in contemporary field reports tended to appear only as generalised dashed lines added to a sketch outline of a complete or near-complete vessel. Publication of technical section drawings is a means of transmitting specific information about individual artefacts to the reader (who would very likely never see the original artefacts illustrated) that only gradually gained acceptance over the first half of the 20th century. Only over the past half-century has it become standard practice in archaeological illustration, now with general conventions for presentation of collective and individual features that, to a very large extent, Zahn and von Lüpke already had anticipated a century ago. Zahn's landmark publication of the DAE small finds was, in other words, thoroughly if not even overly comprehensive for its day, and served to raise the small finds to a level of importance similar to that placed by Krencker on the monumental architecture and Littmann on the inscriptions published elsewhere in the DAE. The published presentation of the DAE finds easily allows virtually direct comparison with other material elsewhere, without examination of the original artefacts – a statement rarely repeatable for contemporary or later fieldwork reports. It is a great pity, then, that Zahn's chapter of the DAE has been so under-utilised by succeeding generations of scholars[5], whilst the monument and inscription chapters quite rightly remain in such high regard and are so often cited.

Zahn correlated the DAE finds with then-published comparanda from other sites and

[3] Krencker's surviving archive is held by the *Deutsches Archäologisches Institut* in Berlin. It contains no material for the years between 1903 and 1913, except a pre-publication print of Taf. IX, the restored scale drawing of Stela 1 by Krencker (1913). Zahn does note that the findspot of one fragment (#117) is inscribed on it.

[4] [Additional to those finds here described by Jacke Phillips, some more objects were brought to Berlin: David Phillipson informed me that a fragment of an inscription from Aksum (DAE 22, RIE 205, p. 299) came to the Near Eastern collection (no. VA 3370), where it remains. Likewise the fragment of an incense burner from Yeha (DAE 32, RIE 48, p. 125) was presented to the Near Eastern collection (no. VA 3369), but most probably was lost during the war. Information concerning both from Ramona Föllmer, Oct. 22, 2008. The 'gem' should have been stored in the *Antikenabteilung*, but could not be located there (information from Dr. Agnes Schwarzmaier). St. Wenig]

[5] One is reminded of the detailed human anatomy studies drawn by Leonardo da Vinci. These remained completely unknown for several centuries, as succeeding generations of medical anatomists re-discovered many of the artist's detailed observations and conclusions before his drawings were examined by art historians.

surveys in the region, chiefly Paribeni (1908) and Dainelli and Marinelli (1912), as well as Piva (1907) but occasionally also others less comprehensively published. Insofar as he was able, he documented the material recovered elsewhere in 'Colonial Eritrea', by material and then context, often quoting the original descriptions and citing available illustrations. However, Zahn's analysis of the DAE material highlights his own academic breadth as well as his acuity, drawing upon comparable material from other cultures beyond it as far distant as southern Russia and Etruria in Italy. He argued – correctly – both a local origin for all the few painted ceramics recovered both at Aksum and Adulis, against Paribeni's opinion that some were Egyptian imports, and for Roman influence for the increasingly pronounced decoration on the horizontal (i. e., ledge) rims of locally made dishes and bowls.

The ceramics he divided into three main categories, based on their colour and finish. Category A he recognised as of local origin, whilst the latter two are imports to the region. It is worth listing his basic categories, as they still remain valid (although not specifically in use) even a century later:

A Clay with inclusions, handmade.
- I sherds with red clay.
- II coarse ware.
- II sherds with grey clay and polished surface.
- IV coarse grey ware.
- V technically advanced ware.
- VI varia.

B Wheelmade, hard-fired ware of good clays.
C Sherds with bluish-green glaze.

It was, however, to be a long time before any further progress in the understanding of Aksumite small finds was made, as virtually no further related fieldwork was conducted in the region for some 30 years after the DAE had left. Investigations both at Aksum and elsewhere in the region, when revived, initially did little to build upon Zahn's exhaustive publication of these artefacts. Whilst the work conducted under Italian military occupation obviously produced new finds, virtually no photographs were included and the published outline sketches provided little insight into the actual objects. For any detailed analysis from published material, the DAE chapter by Zahn remained virtually the only useful source until at least the mid-1950s when some photographs appeared. The earliest subsequent research continued to remain little concerned with small artefacts, concentrating on the monumental structures and inscriptions, through which a general understanding of continuity and dating was developed. Ceramics and other small finds were published together with their related monuments, although none in the exemplary fashion of the DAE. Later excavations both at Aksum and elsewhere began to build upon Zahn's initial publication, providing a chronological sequence and developmental typology for the Aksumite and later cultures first uncovered by Littmann and his team, but oddly with little reference to the DAE[6].

Since the DAE excavations essentially produced very little stratigraphy, dating by this method was not an option for Zahn. He made some sense of ceramic development through comparison with Paribeni's descriptions of material from his excavations at Adulis that reached down to 4 m. in depth. A generalised terminology for the various phases of early Ethiopian history gradually appeared in the numerous preliminary reports in the *Annales d'Éthiopie* throughout the 1950s and 1960s. This encompassed two basic terms, *axoumite* for the period, artefacts and structures similar to the archaeological remains published in the DAE, and *preaxoumite* for earlier material, not found by the DAE, that could be related to the South Arabian 'Sabaean' style from across the Red Sea. The cemetery excavations at Selaklaka, west of Aksum, provided a good initial presentation of *preaxoumite* material (Cossàr 1945)[7], although the illustrations were far inferior to the DAE drawings. Subsequent publications added to the chronological sequence and developmental typology for the Pre-Aksumite as well as the Aksumite and later cultures first uncovered at Aksum by Littmann and his team. Still, the wide-ranging date parameters for the civilisation could only be divided at sometime in the 1st c. A.D., the *preaxoumite* ranging from as early as the 5th c. B.C., and the *axoumite* down to the 10th c. A.D. The most useful means, as ever, were the coins and ceramic material recovered. Glass, stone and metal artefacts generally are much less useful, although they too can provide some indication of passing time.

[6] An exception is de Contenson 1963a.

[7] Pre-Aksumite material had not previously been recovered either at Aksum or at Adulis,

It was not until the work of Francis Anfray that an actual developmental typology could begin to be established. By the mid-1960s, he had been surveying and – more importantly – excavating numerous archaeological sites in both northern Ethiopia and Eritrea for over a decade on behalf of the Ethiopian Institute of Archaeology. His large-scale multi-season excavations, chiefly at the site of Matara in modern Eritrea, allowed him to outline the first *formal* classification of chronological terminology, together with the principal sites and material characteristics associated with each period. He proposed a basic tripartite development, a 'South Arabian' or 'Pre-Aksumite' period (5th–4th c. B.C.), an 'Intermediate' period (3rd B.C.–1st c. A.D.), and finally an 'Aksumite' period. This last period he was able to subdivide into two epochs, Aksumite I (3rd–4th c. A.D.) and Aksumite II (6th–8th c. A.D.), based on the appearance of Christian motifs on the pottery found in later levels at the site, as well as excavations in locations of more limited use having pottery from only one or the other subdivision[8]. His fieldwork at multiple sites throughout the entire region enabled him in 1973 to propose a regional differentiation apparent at a variety of 'eastern' and 'western' sites that he suggested might be provincial distinctions (Anfray 1973: 19–20)[9]. His work was enlarged and supplemented, for the Pre-Aksumite period, by Fattovich's (1980) systematic typological analysis of the material.

Further insight also was achieved, for the Aksumite periods, by Richard Wilding (1989), who considered and analysed the material excavated by Neville Chittick in 1972–1974 at a large number of locations in and around Aksum. These excavations were stratified and Wilding divided their material, as had Zahn, by fabric colour as Red, Brown, Black and Grey Aksumite wares. These divisions also were noted to represent a succession of developmental stages, and to show a development in the technologies used to produce them. Essentially, Wilding's 'Red and Brown Aksumite' are collectively found in Zahn's Groups I–II and V and 'Black and Grey Aksumite' in Groups III–IV and they are, as Zahn suggested, successive in date. Wilding's study, together with Anfray's interpretations, became the basis for subsequent discussion and analysis. The two 1990s projects at Aksum, British and Italian-American, both have developed further chronological refinements to Wilding's ceramic typology through detailed recording of tomb and context groups and stratigraphical assessment of their collective finds (Phillips 2000f.; Perlingieri in Bard et al. 1997: 397, Fig. 111)[10]. The results of both have allowed the dating of contexts to be condensed to ranges as little as half a century in some cases, as well as enabling the DAE material to be placed within a greater whole. A detailed discussion of the majority of DAE ceramics is not possible here, but comparanda can be found, with further discussion and analysis, in both publications mentioned. The remainder of this chapter is limited to comment and discussion of the DAE material found in smaller quantities, placing what were then individual examples of their type within a perspective gained from a century of subsequent fieldwork and analysis. This encompasses those ceramics listed by Zahn as the Category A-VI 'Varia', Categories B-C wheelmade wares, and those artefacts in other materials, i. e., those published in the DAE as #85 and following.

A.VI: 'Varia' (# 85–87)

The three 'varia' of Category A are interesting pieces, each for different reasons. Two are 'figurines', one of an ox (#86) and the other a bird (#87). This ox 'figurine' type has since been recognised through more complete examples as an integral part of a specific deep 'animal-model bowl or basin' form, with a pair of usually yoked oxen standing upright on the vessel's interior bottom[11]. This basin

[8] Anfray 1967: 49–53, and more comprehensively in Anfray 1968: 355–357. Note that periods of transition, namely the 2nd and 5th centuries A.D., are not mentioned as he was unsure of their placement in his classification. He already had employed this distinction at Matara, although not stratigraphically; see initially Anfray / Annequin 1965, and then Anfray 1966.

[9] Zahn's recognition of one sherd (#84) with a dull brown-violet painted cross on the interior as being of 'local' origin, and of the barely preserved pattern itself as a cross, too were remarkably astute. This is an example of Wilding's (1989: 311–312) 'Purple-painted Aksumite' ware, that he noted to be 'much commoner in Eastern Tigray and Eritrea' than in Western Tigray and Aksum.

[10] This is an early illustration of Perlingieri's typological development; the completed study will appear in the final project report, now in press.

[11] De Contenson 1961: Pl. XVIII; Wilding 1989: 257, 261, Figs. 16.159, 189–196; Phillips 2000a: 63–64, Figs. 46, 47.h; 2000f.: 334, Fig. 290.e, see also Fig. 290.d.

Fig. 1 Clay bird figurine or appliqué (*DAE* II, pl. 30.10). Antikensammlung Berlin, Inv. Nr. 30524.

form is analogous to similar basins having a tripod-supported slab mounted horizontally at the same location[12], now called 'footwashers', several slabs of which also are amongst the DAE collection (Zahn 1913: #47–49). The bird figurine (#87, Fig. 1) is more difficult to consider, as its scale regrettably was not included in either its description or its illustration caption. Bird figurines are known in both large and small scale, the former normally as *askoi*[13] and the latter as vessel attachments. Bird-shaped *askoi* and other bird-shaped vessels are known types of specialised function(s) found over much of the Mediterranean and Near Eastern worlds through several millennia in multiple variations (Hayes 1972: 175–176 Form 123, Pl. II.c; Misch 1992; Guggisberg 1998), and it is not surprising that they should also appear in the Aksumite region. Although inevitably rare, they are easily recognised[14]. However, the hole pierced through the DAE bird's body suggests instead an overly large vessel attachment, such as those found on the ledge-rims of large bowls and related vessels[15]. Only one (other) such attachment features a pierced body hole, albeit horizontally through the legs, and likely all are of smaller scale than the DAE figurine. Apparently isolated bird figurines also have been found at Haulti nearby (de Contenson 1963b: Pl. XXXVII.4–5), but their legs are lacking. Another bird figurine combining vertical pierced body hole and separated legs, as the DAE bird, has as yet to be found. The small pierced cross (#85) is now a well-recognised type recovered many times at Aksum[16]. They likely are a regional variation, doubtlessly a 'christianisation', of the so-called *conuli* or 'pierced cones' also found at Aksum and regularly excavated throughout the ancient world. Detailed study of these 'pierced crosses' shows a quite varied range of profiles and forms. The profiles of many at Aksum seem to be a hybrid shape, many being essentially a conoid form having four extended arms[17].

B: 'Wheelmade, hard-fired ware of good clays' (# 88–94)

The DAE collection includes some imported ceramic sherds that have helped to provide both a relative and absolute chronology for both the Pre-Aksumite and Aksumite cultures, that Zahn identified as Category B, the wheelmade sherds. These included four sherds of ribbed amphorae (#88–91, one a knobbed base) of 'Byzantine and Coptic date', a bowl sherd of 4th–5th c. A.D. date (#92) and two further sherds (#93–94) of less identifiable origin that Zahn does not discuss. Rim sherd #94 at least

[12] E. g., de Contenson 1961: Pl. XIX; Wilding 1989: Figs. 16.198–207; Phillips 2000a: 63, Fig. 44.e, .i.

[13] Sing. *askos*, a generally bag-shaped vessel with handle at the top and closed pouring spout at the side. The bag-shape resembles a bird in shape, and many *askoi* emphasised this resemblance. Not all bird-shaped vessels are *askoi*, however.

[14] Anfray / Annequin 1965: 82, Pl. LXV.1.left; Anfray 1966: 9, 41, Pl. XVIII.4, Fig. 4; Wilding 1989: 283, Figs. 16.302–303; Phillips 2000a: 72–77, Fig. 56; 2000d: 326, Fig. 161; possibly also 2000c: 212, Fig. 189g.

[15] De Contenson 1959: Pl. XVIII; Wilding 1989: 252, Figs. 16.143–146; Phillips 2000a: 60, Fig. 45.f.

[16] Anfray / Annequin 1965: 83, Pl. LXV.3; Wilding 1989: 313, l. 16.1, lower; Phillips 2000: 334, Fig. 290.h-i.

[17] See Wilding 1989; Phillips 2000d: 334 and compare Figs. 290.f-g and 290.h-i in the latter.

visually appears to be the same type as that recovered in the 1993–1997 excavations, where it comes from Pre-Aksumite levels mainly at 'D Site' (Phillips 2000d: 312, Fig. 270.f–h). Zahn's description of this sherd as having 'the best clay and firing' also would be indicative of this virtually inclusion-free ware, whose origin may be in southern Arabia/Yemen. This single imported sherd (#94, Fig. 2) therefore would be the earliest recorded evidence (had we but recognised it) for Pre-Aksumite occupation at Aksum itself – an occupation otherwise not realised for nearly 90 years of further fieldwork. Category C, the green-blue glazed sherds, likewise he identified as imported material. Together, these sherds represent what have since been recognised as the most common imported types found in the region. Oddly enough, Zahn does not appear to have specifically noted that his distinction of 'handmade' and 'wheelmade' wares also separates 'local' from 'imported' wares. He discusses their comparanda and correctly identifies all their origins: the Graeco-Roman amphorae and 'African Red Slip' bowl all from Egypt, and the glazed sherds from Mesopotamia/Persia, although both Egyptian types are now known to originate from a much wider area around the Mediterranean beyond Egypt itself. Both 'Egyptian' types had already been found in greater quantities at Adulis, where Paribeni also recovered other imported material not then paralleled at Aksum. The amphorae have since been found elsewhere at Aksum[18], and in the region[19] and study of their petrology and fabric has been initiated (Williams 2000) that eventually will locate their diverse but specific origins within its author's larger investigation. The 'African Red Slip' ware also has appeared elsewhere in the region, mainly as bowls[20], although just possibly also as a tile fragment (Phillips 2000d: 336–337, fig. 290.k).

C: 'Sherds with bluish-green glaze' (# 95–96)

The greenish-blue glazed pottery has since appeared in some surprising quantity and diversity at Aksum[21] as well as at Matara (Anfray / Annequin 1965: Pl. LXVIII.6; Anfray 1974: 759, Fig. 6). Enough of these glazed sherds have been recovered in sufficiently well dated contexts at Aksum to realise that the generally-employed identification for this ceramic type, 'Sassanian-Islamic', is misleading as their 5th–6th c. A.D. contexts here unquestionably pre-date the beginning of Islam in 622 A.D., and they are now termed 'Sassanian blue-green glazed ware'. Glaze preservation on these pieces is far superior to those recovered 'at home' in the Persian Gulf region, and their petrography too has been examined (unpublished as yet).

'Stone' (# 97–106)

The DAE stone objects are a varied lot, almost all as single type fragments in markedly different stones. Discussion here is limited to comparison with subsequent finds. Three vessel fragments, a bowl found at Qohaito ('hard grey stone with fine red veins', #106) and two handles ('grey stone [fine-grained granite]' and 'white marble', #104–105) of widely varying scale, were brought to Germany. The last is deeply fluted. Subsequent stone vessel finds generally are uncommon, like these three fragments mostly as 'one-off' instances in a variety of stones[22]. The one exception to this statement is a group of some 23 fragmentary vessels recovered in a single 5th–6th c. A.D. context, 'IW II(5)' in Malake Aksum. All have virtually the same form and material, a purple and white breccia stone (Munro-Hay 1989: 317–318, Figs. 17.1–23), although a 'calcite' example of similar form was found elsewhere at Aksum (de Contenson 1963a: 12, Pl. XX.e).

The bracelet or bangle ('iron-rich chlorite', #97) and irregular ring ('white stone', #100) are examples of stone jewellery, the bangle being of the most common form with generally triangular section in both stone and glass[23]. The ring, too large to be a finger-ring, has no comparison as yet but might be an excessively

[18] Wilding 1989: 314–315; Phillips 2000d: 326, 335, Figs. 283.a, c, 290.j; 2000e: 394, Fig. 343.a.

[19] Anfray / Annequin 1965: Fig. 11; Anfray 1966: Fig. 9; see also Phillips 1995: 5 nn. 7–8.

[20] De Contenson 1963: Pl. XX.f; Anfray 1966: 17, 44, Pl. XXI, Fig. 10; Wilding 1989: 315; Phillips 2000b: 196, Fig. 170.b; 2000c: 208, Fig. 188.a; 2000d: 326, Figs. 283.d, .h, 284.a; 2000e: 394–396, Fig. 343.g.

[21] Wilding 1989: 315–316, Fig. 16.472; Phillips 2000d: 326–329, Fig. 283.b; 2000e: 396, Fig. 340.c–d.

[22] Munro-Hay 1989: 317, Figs. 17.24–26; Phillipson 2000: II: 408, Fig. 359.a; Phillipson / Phillipson 2000: 348–349, Figs. 307.a, d, 308.

[23] Morrison 1989: 207, Figs. 14.194–195; Harlow 2000c: 338, Fig. 293.a; 2000d: 402, Figs. 349.a, 350.h; Phillipson / Phillipson 2000: 348, Fig. 307.b.

large ring-bead (compare with Harlow 2000d: Fig. 352.j). Two flat discs ('white shelly stone', #98–99) are similar in shape and size to another of greenish-grey steatite found attached to an iron needle (#112, Fig. 2), but all need not have shared the same function. Zahn thought the two were beads from a necklace. They may instead have been what are conventionally called 'spindle whorls', which are normally but not always made of clay (Phillips 2000d: 335, Fig. 290.j; 2000c: 212, Fig. 189.f). Surprisingly, Zahn did not illustrate the 'gem' engraved with two confronted stags (unstated stone, #106a)[24], but it might be compared with a chert(?) intaglio (Phillipson / Watts 2000: 155–156, Fig. 125.a) and ring-bezels of glass from Aksum (Morrison 1989b: 207, Fig. 14.196; Harlow 2000c: 342) as well as sandstone(?) seals from Matara (Anfray 1967: 43 #JE 3443, 3222, Pl. XL–XLI. lower) excavated subsequently. Stone intaglios, bezels and cameos are well-known components of Classical and Byzantine jewellery, but the intaglio has been judged a local Aksumite product under heavy Roman influence and so too may – or may not – be related to the DAE 'gem' whose origins cannot be identified until it is relocated. A square-sectioned 'rod' ('fine-grained brownish-red stone', #101) is so far unparalleled, and its purpose is unknown. It may be a length of pre-cut stone to be further cut into mosaic *tesserae*[25] by a local artisan; mosaics have not been found at Aksum, but 'chequerboard' patterns of smaller inlaid glass *tesserae* are known in the 'Tomb of the Brick Arches' (Munro-Hay 1989: 215, Fig. 15.65; Phillipson 2000: I: 105–108, Figs. 87.a, 88.b-c) and the Stela 2 excavations nearby (Phillipson / Watts 2000: 156, Fig. 125.b). Zahn suggested the small round possible gaming piece ('dark grey conglomerate [iron-streaked (*eisenschüssiger*) sandstone]', #102) might be for the *gebata* game, a board for which was found at the 'D Site' (Phillips 2000d: 336, Fig. 291) and depressions for which were noted by Phillipson (1997: Fig. 35) but not by Krencker on the front baseplate of Stela 3.

The axehead ('greyish-green stone', #103) is another matter entirely. This region has been inhabited since the Early Stone Age, and an Acheulian handaxe of that period was a surface find (L. Phillipson 2000: 17, Fig. 13.d) in the 1990s. The ground and polished DAE axehead, however, is entirely different. A similar tool has not been recovered at Aksum, although both ground and flaked stone tools were in use here throughout the Aksumite period as well as earlier. Analogous axeheads have been found at Agordat near Asmara in Eritrea (Arkell 1954: 36–42, Figs. 4.4–5, 5.9–10), as well as two in a granitic stone and one in polished 'serpentine' in 'Christian' Aksumite contexts at Matara (Anfray / Annequin 1965: 59, 82, Pls. LXIV.4.left, LXV.2), and this may well be the date of the DAE axehead as well.

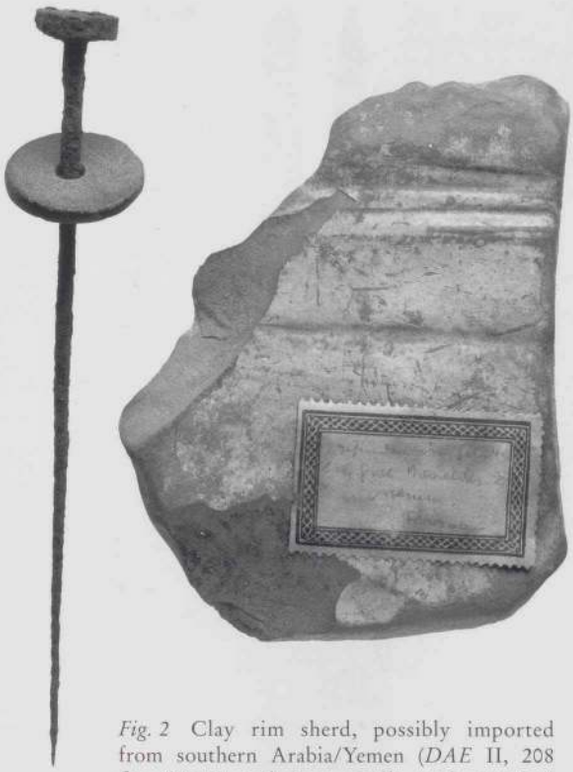

Fig. 2 Clay rim sherd, possibly imported from southern Arabia/Yemen (*DAE* II, 208 fig. 431.94) and iron needle with attached greenish-grey steatite disc (*DAE* II, pl. 30.13). Antikensammlung Berlin, Inv. Nr. 30524.

'Bronze' (# 107–111)

Bronze finds are a mixture of jewellery and tools, some of which may be modern or at least Post-Aksumite in date as the types have continued in use to modern times. An unillustrated nail with square shank and gilded domed head (#111) has strong echoes in the gilded bronze nails, sheet fragments, and even a handle from the 'Mausoleum' (Phillipson

[24] But see nn. 1 and 4, above.

[25] Sing. *tessera*, a small usually square block of coloured stone.

Fig. 3 Bronze 'toothpick' with incised decoration (*DAE* II, pl. 30.16). Antikensammlung Berlin, Inv. Nr. 30524.

1989: I: 202–203, Fig. 178.e[26]); other gilded objects also have been recovered elsewhere in Stelae Park (Munro-Hay 1989: 210) and gilded bronze sheet fragments at 'D Site' (Phillipson 2000: II: 343, 344)[27]. All 'Mausoleum' gilded nails are flat-headed, but one gilded nail from an unstratified 'K Site' Post-Aksumite context has a domed head and square shank section (Phillipson 2000: II: 406[28]) analogous to the DAE nail and may be of Aksumite or later date. An ungilded bronze nail with domed head and square shank (Phillipson 2000: II: 344, Fig. 299.g) is the only analogous item with good context date, mid-late 7th c. A.D. and so immediately Post-Aksumite – although this single nail itself may be older than its context. The gilded 'Mausoleum' objects are in primary contexts and thus most likely are of 3rd c. A.D. date. A length of two wires twisted around each other and positioned into a bow-like shape (#109), complete as is and perhaps to be seen as a misshapen bracelet, has but one comparison as yet, an incomplete ring(?) fragment (Munro-Hay 1989: 228, Fig. 15.175). A similar technique is found on two pieces of bar twisted together for attachment (Phillipson 2000: I: 87, Fig. 69.a), whilst three knives each have an integral handle consisting of a single twisted bar (Munro-Hay 1989: 215, Fig. 15.71; Phillipson 2000: I: 91, Fig. 70.a-b. All are from the 4th c. A.D. 'Tomb of the Brick Arches'. Zahn's observation that the metal of the twisted wires seems more like brass than bronze presages scientific identification of brass and other metals in lieu of 'bronze' for other artefacts (Feuerbach 2000: 497, 498). The decorated toothpick-like stick (#108, Fig. 3) from the Ta'akha Maryam 'palace' area also has no direct parallel as yet, but likely served a similar purpose as the three bone points (Phillipson 2000: 345, 408, Figs. 302.b, 358.f-g) found in less-than-élite habitation areas, possibly even as toothpicks. The earpick or ear-scoop (#107) is not really dateable without an associated context. Several were found in Stelae Park and elsewhere (Munro-Hay 1989: 229, Fig. 15.204) in both modern and Aksumite contexts. They are 'made as much for show as for use, and are often used as necklace pendants' (Girma / Wilding 1976: 65). The last object, a hollow attachment or ornament (#110), also is difficult to date, although it seems more likely to be Post-Aksumite than earlier. It may have had a small lump of bronze inside that rattled when the object to which it was attached was moved.

[26] See also Phillipson 2000: I: 203 for gilded iron objects in the 'Mausoleum', and Feuerbach 2000 for metallurgical analysis of gilded objects.

[27] The presence of gilded metal objects is not surprising in a culture that also produced gilded coinage.

[28] K/86\; its shape is as described on its unpublished catalogue entry. Another bronze nail K/230\ with domed head but rounded shank and no trace of gilding has a similar mixed context. Iron nails with domed head and square shank all have similar mixed contexts (Phillipson 2000: II: 345, Fig. 301), but one with a rounded shank was recovered in the 'Tomb of the Brick Arches' (Phillipson 2000: I: 113, Fig. 94.a) and thus is certainly Aksumite in date.

[29] Perhaps the date of its introduction into Aksumite use will be ascertained from the Bieta Giyorgis excavation final report; see n. 10, above.

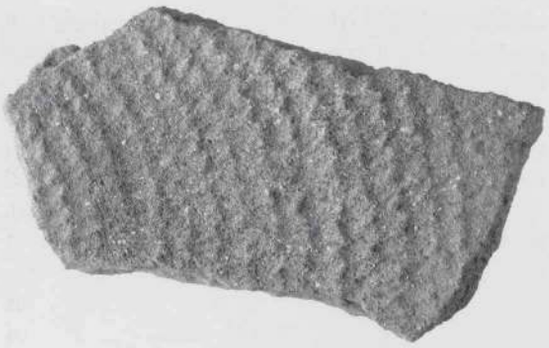

Fig. 4 Clay basket-impressed open vessel body sherd (*DAE* II, 204 fig. 427.46). Antikensammlung Berlin, Inv. Nr. 30524.

Fig. 5 Iron single-barbed arrowhead, barb broken off (*DAE* II, 221 fig. 437.113). Antikensammlung Berlin, Inv. Nr. 30524.

'Iron' (# 112–116)

No iron has been found in Pre-Aksumite levels (Phillipson 2000: II: 345), so it should not have been employed until after that period[29]. The DAE iron objects appear to be a mix of Aksumite and Post-Aksumite/modern date. The needle (#112) with attached steatite disc is of a type still made, purchased and used today for making holes in basketworking; a similar needle was recently excavated at the 'K Site'[30]. Evidence for basketry identical to modern sieves also has come to light in the 'D Site' (Phillips 2000d: 333–334, compare Figs. 288.b-c and 331), indicating this sieve form has a lengthy history in the region. Other forms too are generally comparable to Zahn's one impressed but otherwise featureless open vessel sherd (#46, Fig. 4). However, this sherd uniquely is impressed on the interior, suggesting it was formed over the exterior of an open basket, and so indicates that both basket surfaces could be used and impressed in ceramic vessel manufacture. All other 'basket'-impressed sherds are impressed on the exterior of the clay vessel. The single-barbed arrowhead (#113, Fig. 5) also is unusual here. Others since recovered lack the barb altogether (Munro-Hay 1989: 223, Fig. 15.127; Phillipson 2000: I: 111) or in one case is much smaller, bi-metallic and double-barbed (Phillipson 2000: II: 407, Fig. 356.b); Zahn noted one found at Adulis also was barbless. Single-barbed arrowheads are characteristic of Meroitic and Post-Meroitic artefacts along the Nile valley (Lenoble 1987: 91, Pl. VII.47–62; Phillips 1987: 39, Pl. 7.b) generally contemporary with the Aksumite period and, although the DAE example differs somewhat in general shape, it may nonetheless still originate from a westward direction; very little is yet known of the archaeology between Aksum and the Nile valley at this period. The square tablet representing Adam's tomb (Hecht et al. 1990: 17) on the lower part of a handcross (#114) is so definitive of its Ethiopian origin that further comment is unnecessary. Its dating is problematic (Hecht et al. 1990: 18) although certainly not earlier than Aksumite conversion to Christianity. The broken 'hook' (#115) is unlike others found since (Anfray / Annequin 1965: 84, Pl. LXVIII.1; Munro-Hay 1989: 228, 230, Figs. 15.212–213, Phillipson 2000: II: 343, Fig. 299.d, all of bronze) but it has some visual association with the 'cramps' or 'angled spikes' found mainly in the 'Tomb of the Brick Arches' (Munro-Hay 1989: 337, 233, Figs. 15.139–140, .153; Phillipson 2000: I: 113, Fig. 92.a; II: 345, Fig. 301.b). No direct comparison is published.

[30] K /149\, unpublished, from Level VIII, a mixed/post-Aksumite context.

It too may be Post-Aksumite. The same comments apply to the square plate (*Kopfplatte*) with cylindrical central depression (#116) that Zahn understood as 'doubtless a large clamp' employed for the woodwork of large buildings.

'Glass' (# 117–124)

Objects and fragments of glass had been recovered in some small quantity before the DAE, chiefly beads and vessel fragments, and the DAE finds include a only few small objects and five vessel fragments, the latter of the same clear with greenish tinge colour so common in the ancient world and, interestingly, all recovered at the 'Tomb of Kaleb and Gebre Meskal'. Nonetheless, these vessels are of some importance, for again they illustrate the variety of what were later to be realised as common examples of their types here. Later excavators have since recovered comparative material in some quantity, and most vessel forms represented in the DAE are duplicated in later excavations. The five rim and body fragments (#117) and two handles (#118–119) all belong to a very common globular lamp form with two vertical handles for suspension[31]. It should be noted that none have subsequently been recovered in tomb contexts although some, like the DAE rim sherd, have been found near or above them. The rounded base (#120) is of a common phial, used for perfumes[32]. The unillustrated base of a cylindrical vessel (#121) may be similar. The last DAE vessel, a long narrow-necked bottle with sloping shoulder and hexagonal body (#122), so far is unique although other vessels with similarly long narrow neck and sloping shoulder (Morrison 1989b: Fig. 14.91) are known.

The one bead (#123) is unillustrated, but from Zahn's description as facetted and translucent can be recognised as the second most common form recovered at Aksum (Morrison 1989a: 169, Figs. 11.7–10). They are chiefly associated with tomb contexts (Harlow 2000a: 83–85, Fig. 64.a-d; 2000b: 199–200, Fig. 176) although, like the DAE example, also are found elsewhere (Harlow 2000c: 339–340, Fig. 296.a–c). Of extreme importance, however, are the two small and unillustrated opaque reddish-brown glass rods (#124) cited by Zahn as proof that glass processing was actually conducted at Aksum itself. No further indication of indigenous Aksumite glass-working[33] was recovered until the 1974 excavations, when a complete glass beaker clearly copying Aksumite ceramic beakers was excavated in a tomb in the Gudit stelae field (Morrison 1989b: 209, Fig. 14.15)[34], nor was this point confirmed until 1996 when two more rods and a small waste-lump of glass were excavated in an 'industrial/craft-work' area at 'K Site' (Harlow 2000d: 402, Fig. 349.d) where, apparently, beads also were made[35].

'Other Materials' (# 125–127)

Most astute also, especially for its time, is the DAE's inclusion of two *cypraea* (cowrie) and one *tridacna* (giant clam) shells (#125) from the Ta'akha Maryam rubbish amongst the material brought back to Germany; neither are illustrated. Cowrie shells, inhabiting the Red Sea and beyond, have been imported inland at least as far as the Nile Valley since Neolithic times, where they often were 'holed' for attachment as jewellery, but their publication is rare and especially so in the early 20th c. Zahn's description mentions no man-made alteration, but at Aksum they have since been recovered both with and without the stringing holes. At least two worked cowrie shells were found in 5th and 6th c. A.D. habitation contexts at 'K Site' (Phillipson 2000: II: 408)[36]; one also has traces of added red paint. The *tridacna* shell, like the cowries, must be an import to Aksum from the coast, as the giant clam inhabits the Red Sea and Persian Gulf. Although not identified as to species but possibly also *tridacna*, a surprising number of worked rectangular shell plaques have since been recovered at Aksum in tomb contexts. Most are engraved

[31] Morrison 1989b: 200, Figs. 14.127–134, 137–141; Harlow 2000c: 239, Figs. 293.g, 294.a; 2000d: 401, Figs. 349.b, 350.c–d.

[32] Anfray / Annequin 1965: Pl. LXX.3. upper right; Morrison 1989b: 195–200, Figs. 14.100–113.

[33] It must be stressed that this is *not* evidence of glass *manufacture* at Aksum, for which no definitive proof has yet been found. See now further discussion in Phillips 2009: 37–38.

[34] This is the 'westliches Stelenfeld' in the DAE. Further fragments of other beakers were found, mostly in tombs (Morrison 1989a: Figs. 14.16–35). Additional evidence for indigenous glass working, Morrison correctly notes, is the sheer variety of glass colours, far more than is known elsewhere at that time.

[35] The 'flattened droplet' (Harlow 2000d: Fig. 350.i) might be a finished piece.

[36] Two other worked cowrie shells were recovered at 'K Site' and six more in the 'Mausoleum' excavations.

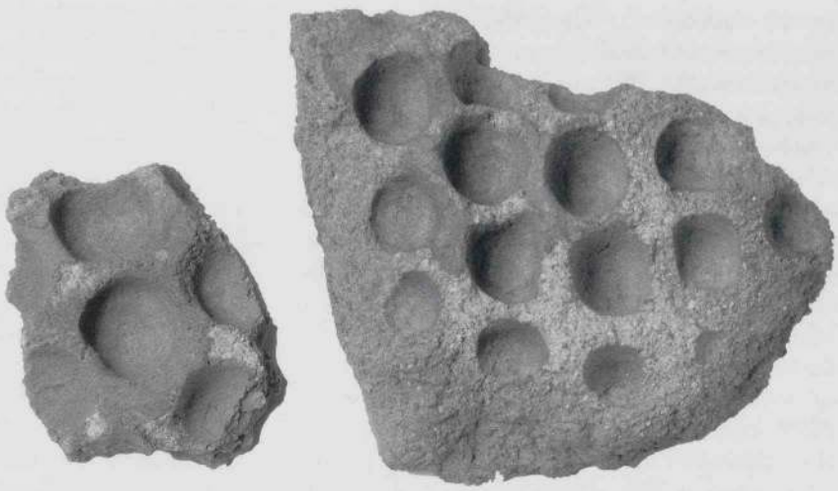

Fig. 6 Clay flan-mould (*DAE* II, 224 fig. 438). Antikensammlung Berlin, Inv. Nr. 30524.

with geometric or figurative designs and some also are red-painted (Munro-Hay 1989: 321, Figs. 19.3–7; Phillipson 2000: I: 204, Fig. 181). Other shells of unidentified species also have been recovered in the BIEA excavations.

An unillustrated lump of plaster (#126), described as having a smooth light yellowish-brown stuccoed surface layer with coarser render below, is another unusual souvenir from the Ta'akha Maryam excavations. It is comparable to the lime plaster rarely recovered elsewhere at Aksum, namely the five tiny light reddish-brown stucco fragments at the 'D Site' Pre-Aksumite levels (Phillipson – Phillips 2000: 279–280), as mortar used in the construction of brick arches (Munro-Hay 1989: 162; Harlow / Phillipson 2000: 170; Tipper 2000: 32), and for the render partially covering the 'Mausoleum' interior (Munro-Hay 1989: 100; Harlow / Phillipson 2000: 176; Morgan 2000). The sparing employment of plaster at Aksum and its recovery at Ta'akha Maryam suggest a specific use in the palatial building that has yet to be considered. Presumably this location was visible, since the clearly distinct surface layer consisted of finer stucco composition than the interior. The only possible comparison is the structure excavated at 'IW II', which had a 'plaster floor' (Munro-Hay 1989: 138, Fig. 8.18), although nowhere is this said to be of lime plaster. The DAE's farsighted retention of this unprepossessing sample, having no artistic worth whatsoever and not even discussed by Zahn beyond commenting it could be either a floor or wall fragment, preserves for us an aspect of 'palatial' or 'élite' architecture not noted since.

The last object (#127, Fig. 6) was discussed in some detail by Zahn and his text is worth repeating in full:

"These two pieces of unspectactular appearance yet of a certain importance were both found in a deeper layer at Ta'akha Maryam. These are pieces of raw slabs made, according to Professor Rathgen, not of common clay but of an artificial probably fire-resistant mass high in silica, kneaded and fired. Holes have been impressed into the not carefully levelled surface of the one side using a bar rounded at the front or, as we shall see, with several such bars, whilst in a still-soft state, so that the pieces look like a wasp's honeycomb. The larger one is illustrated (Fig. 438). It shows, at the broken surface edge at 'a' in the sketch, the smaller half of a perforation penetrating the entire slab that expands funnel-like to the surface not punched with holes, quite like the entry pouring-hole of a mould. This slab surface, as well as the piece of the preserved perpendicular edge and the wall of the pouring-hole, is covered with a black-green slag crust that at one point also extends slightly to the broken edge. This [crust] is not the remains of a mass poured into the form, as one might initially presume, but was created by melting the surface at an enormous heat. Two places far from [Aksum], at the opposite end of the Old World, have presented us with equivalent finds: the Mont Beuvray, the old *Aedu*er-city Bibrakte, and its easterly counterpart, the fort of Stradonitz in Bohemia [in modern Czech Republic]. At both places, in ruins of ore-foundries, pieces of such slabs have been found that sometimes show rounded and sometimes

square depressions. The latter are deceptively similar to our waffle-irons and it is hence understandable that the first discoverer, Bulliot, postulated them to be something similar. Déchelette would like to see them as forms in which the components made from red molten glass (with which the Celtic bronze adornments are decorated) were cast. Pi, in contrast, assumes that coin blanks for the raw Gaulish coins, the so-called 'rainbow dishes', were produced in them. However, this explanation does not fit with the square shape of the depressions in some slabs. The entry hole of our Aksum piece contributes something new. It proves that the open holes were not being poured into but that this slab must have fit exactly on another one. This second slab must have had such holes that corresponded exactly to the ones above, but which also had connecting channels through which the metal flowed from one cavity to the other. In any case, it [second slab] was kneaded onto the first slab while the bars with which the impressions were punched were still sticking into them, otherwise it would not have been possible to achieve exactly corresponding impressions in the second slab. I think that these forms were used primarily for pouring precious metals. Out of them were made short thick bars, rounded front and back [i.e., both ends] that were then further processed, similar to the small bars of raw gold found in Adulis". (Zahn 1913: 223–224)[37]

Zahn's 'crust' must be surface vitrification ('created by melting the surface at an enormous heat') rather than metal slag ('remains of a mass poured into the form'), the latter as recently found on the rim and exterior surfaces of metalworking crucibles at the 'K Site' (Phillipson 2000: II: 497, Fig. 357). Another similar slab has since been recovered at Aksum, at the western end of Stelae Park together with mainly 'Red Aksumite' wares (Wilding 1989: 313, Fig. 16.467; Munro-Hay 1989: 67) and so likely in a 3rd–5th c. A.D. context. Its circular impressions are slightly smaller than the DAE slabs, at 6 mm rather than c. 8–10 mm in diameter[38], with no such 'crust' mentioned, and Wilding identified his example as a possible coin-flan mould with no published reference to Zahn's discussion. More also have since been recovered within the 'La Tène III' (*not* Roman) cultural sphere, in addition to those comparanda already mentioned by Zahn, at Saintes in France (Déchelette 1904: 158)[39], in pre-Roman British contexts at Colchester (Hawkes / Hull 1947: 129–133, Pl. XVI.1–14) and Silchester (Boon 1954: Pl. XVI), and a mid-1st c. A.D. Roman context at Needham (Frere 1941: 51, Fig. 8.c). All are made of clay, except one of limestone at Colchester. All these locations were major 'tribal' centres having coin-mints. Three coin flans, akin to Zahn's 'short thick bars' produced on these moulds, also were recovered at Colchester (Hawkes / Hull 1947: 130–132, Pl. XVI.15–17). Both moulds and flans, including some of the former with the coin face carved in sunk relief, have also been recovered at multiple Greek and Roman sites in the Mediterranean world. Limestone moulds and bronze flans were both excavated in quantity at a particularly well-published minting workshop at Paphos on Cyprus (Nicolaou 1990: 131–146, Figs. 3–11, Pls. XXV–XXXII), dated to the first half of the 2nd c. A.D. Clay slabs also were excavated in 6th–9th c. A.D. contexts at Soba (near Khartoum) in the Sudan[40]. Their impressions vary in diameter, ranging between 9 and 17 mm on the British examples and 6 to 7.5 mm at Soba, thus encompassing the different diameters on the Aksum slabs. Depression, or socket, depths range between 6 and 12 mm in Britain, and 5.5 and 8 mm at Soba. Those at Aksum are 5–11 mm in depth.

Zahn's rejection of the idea that all pieces known to him were specifically *coin* moulds and his proposal that the Aksum finds are more generically for metal bars for purposes other than coins is entirely possible. Coins were not employed at Soba, yet at least eight slab fragments with comparable sockets were recovered there. Allason-Jones suggests that

[37] My thanks to Dr. Peter Forster, Anglia Ruskin University, and Prof. Thilo Rehren, Institute of Archaeology, University College London, for their considerable help in translating Zahn's German text here and elsewhere in this chapter. Note that Zahn's comparanda references are omitted here, whilst text in square brackets are clarifications by the present author.

[38] All DAE slab dimensions are based on the present author's measurement of von Lüpke's published drawing of the larger slab (Zahn 1913: Fig. 438).

[39] Déchelette later cited Zahn's discussion and reproduced his illustration (Zahn 1913: Fig. 438) is his overview of coin-flan moulds (Déchelette 1927: 1050–1053, Fig. 715.1–1.b), one of the very few times that a DAE small find illustration has been reproduced elsewhere.

[40] Allason-Jones 1998: 71–72 #s174, 178–179, 181–182, Pl. 35, see also 74 #205; Freestone / Stapleton 1998: 83.

[41] The three mould fragments are our only direct evidence for coinage production at Aksum itself.

bars produced in the Soba slabs may have been used in a barter system or for jewellery production, both interpretations also compatible with Zahn's interpretation of non-coinage use at Aksum. Nonetheless, Aksumite coins certainly were being produced, likely at Aksum itself[41], between the late 3rd and early 8th c. A.D. and so when Wilding's fragment was interred, and likely also Zahn's slabs. As Zahn mentions, gold bars of a type produced using his Aksum slabs were recovered at Adulis although still none as yet at Aksum itself, in any metal. The length of these bars, and the depth of the mould sockets, is greater than those on the Mediterranean moulds[42], so a correlation of final product at Aksum is not absolute.

Vitrification also is noted on some but not all the British examples, whilst some but not all Paphos and Soba slabs exhibit traces of burning. Vitrification is characteristic of prolonged high temperature processes, either firing in a kiln or from the hot metal being poured (Freestone et al. 1989: 272), whilst Freestone and Stapleton (1998: 83) note the appearance and lack of such a 'crust' are both typical of casting mould finds. Based on its published description[43], melted metal appears also to have been poured into Wilding's 'crustless' mould under moderately high temperatures, whereas the vitrified DAE moulds appear rather to have been subjected to external and intense heat, suggesting that both processes may have been employed at Aksum. All descriptions and illustrations of these artefacts, including Wilding's but excepting the two DAE fragments, clearly indicate that the impressions are evenly spaced and arranged in straight rows on a flat surface. The DAE pieces, on the other hand, are described as having a 'not carefully levelled surface' on the impressed side, and the impressions are not evenly distributed over that surface. This might suggest that they are either locally produced versions by indigenous Aksumite metalworkers of an imported foreign technology they had not yet learned to be skilled at working, or these are simply badly produced moulds.

Zahn's interpretation of the DAE mould had elucidated for early Europeanist archaeologists the technology involved in their moulds[44], but his conclusion of a two-piece mould based on the presence of the pouring spout on his illustrated fragment has since been found to be incorrect. Most, although not all, moulds found in the Mediterranean world[45], and some farther north (e. g. Silchester, see Boon 1954, 69), include a runnel or channel between the sockets. Several moulds recovered at Paphos (Nicolaou 1990: 131, Pls. XXV.1, XXVI.2, XXX.1, XXXI), for example, have a funnel-shaped pouring spout positioned from the mould edge to the nearest flan-sockets along one edge, analogous to Zahn's illustrated DAE slab. Detailed study of the Paphos moulds indicates that the hot metal was poured using the spout-depression into flan sockets on the mould, positioned so that the metal would continue to run from socket to socket via the runnels. A second slab having analogous funnel-sockets but an otherwise flat surface would be tightly attached to the first, thus sealing the sockets and runnels for the hot metal and producing a flan only as deep as the sockets of the one socketed slab. Flans with runnels still attached, as thick as the depth of only one flan socket, were also recovered at Paphos and fit the slabs perfectly, confirming their manufacture on these slabs[46]. A second slab likewise having sockets and exactly fitting the first, as described by Zahn, is not only far more difficult to produce but also unnecessary. Despite the lack of runnels on the DAE mould, a single slab would be all that is required. The length of bars produced therefore would be no more than the depth of the slab sockets, i. e., 5–11 mm at Aksum, and would be rounded only at one end, not both as concluded by Zahn[47]. Nonetheless, the pouring-spout on the illustrated DAE piece is positioned differently than its parallel at Paphos, possibly again an Aksumite misunderstanding of the technique, or perhaps an Aksumite variation of it. The 'not carefully levelled surface' on Zahn's illustrated slab

[42] Those at Paphos are c. 3–5 mm deep, most at the shallow end of this range; see Nikoalou 1990: 135–137. The 'central boss cavity' of these sockets, caused by the point of the drill used to bore them, generally is a further 3 mm deep.

[43] This artefact was not located during my search for Chittick's excavation finds since 1993, nor was a photograph of it found amongst his excavation records in Nairobi.

[44] See n. 39, above.

[45] One exception is the mould from the Herodian stratum at Shomeron, in Israel; see Meshorer 1970. Here, the sockets overlap slightly so a runnel is unnecessary.

[46] See Nicolaou 1972: Pl. XX.3. The entire minting process is described in more general terms but further detail by Meshorer 1970.

[47] The gold bars at Adulis, mentioned above, thus might have been for purposes other than minting coins.

would suggest instead that a second slab was not in fact used. Perhaps metal chips were placed in the sockets and the whole placed in a kiln to melt them, hence the vitrified rather than burnt slab surfaces. Greek and Roman coin flans, their runnel strips still attached, were reheated after removal from the mould to soften the metal so that the resulting coins would not crack around the edge as they were struck. The resulting coins were then separated and bevelled to smooth the edge and remove the runnel marks. Aksumite coins are more rough-edged, through what might be another possibly misunderstood or insufficiently understood, or even rejected, aspect of the minting process as adopted by Aksumite metalworkers. Many Aksumite coins are rough and cracked around the edges (e. g., Phillipson 2000: II: Figs. 423–424), strongly suggesting many of their flans were struck before the metal had softened sufficiently for the striking process to work efficiently, and the bevelling stage seems not to have followed thereafter. If, as it appears, the runnel channels were not part of the process, bevelling may not have been deemed necessary. Thus it seems that Aksumite minters conformed unevenly to Roman methods and standards of coin production. Alternatively, Wilding's question mark in identifying his slab as a coin flan mould would attach itself more readily to the DAE slabs, as the BIEA slab fits far more comfortably into the wider picture. These two slabs are key elements for furthering our understanding of Aksumite metalworking technology, and deserve direct specialist attention. They may, in fact, be the most important – if not the most enigmatic – of the team's 'small' finds, as Zahn himself clearly recognised.

Despite their lack of citation in later publications of Aksumite research, the portable artefacts from the DAE still are able to contribute substantially to our knowledge of Aksumite history, technology and culture, even a century after their excavation and publication. Some pieces can be further elucidated, sitting easily within the overall picture that has emerged through later fieldwork at Aksum and elsewhere. Other objects remain highly unusual or even unique so far, and so even now are able to contribute 'new' insights otherwise not already gained over the past century of research. At least one might be a previously unrecognised import from a still virtually unknown region to the west of Aksum. Still others raise questions that cannot as yet be answered. The DAE continues to remain a major source of information, and its new edition[48] will make the volume – including its small finds – again available and more accessible to an even wider audience.

[48] Reprinted to scale by 'Fines Mundi' publishers, Saarbrücken, 2006.

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Appendix:
Staatliche Museen zu Berlin – MuseumPlus Suchresultat, 27.11.2006

Ident. Nr.	Sachbegriff	Titel	Geogr. Bezug
30524, 1	Scherben	Scherbe	Aksum (Äthiopien)
30524, 2	Scherben	Scherbe	Aksum (Äthiopien)
30524, 3	Scherben	Scherbe	Aksum (Äthiopien)
30524, 4	Scherben	Scherbe	Aksum (Äthiopien)
30524, 5	Scherben	Scherbe	Aksum (Äthiopien)
30524, 6	Scherben	Scherbe	Aksum (Äthiopien)
30524, 7	Scherben	Scherbe	Aksum (Äthiopien)
30524, 8	Scherben	Scherbe	Aksum (Äthiopien)
30524, 9	Scherben	Scherbe	Aksum (Äthiopien)
30524, 9 bis	Scherben	Scherbe	Aksum (Äthiopien)
30524, 10	Scherben	Scherbe	Aksum (Äthiopien)
30524, 11	Scherben	Scherbe	Aksum (Äthiopien)
30524, 12	Scherben	Scherbe	Aksum (Äthiopien)
30524, 13	Scherben	Scherbe	Aksum (Äthiopien)
30524, 14	Scherben	Scherbe	Aksum (Äthiopien)
30524, 15	Scherben	Scherbe	Aksum (Äthiopien)
30524, 16	Scherben	Scherbe	Aksum (Äthiopien)
30524, 17	Scherben	Scherbe	Aksum (Äthiopien)
30524, 18	Scherben	Scherbe	Aksum (Äthiopien)
30524, 19	Scherben	Scherbe	Aksum (Äthiopien)
30524, 20	Scherben	Scherbe	Aksum (Äthiopien)
30524, 21	Scherben	Scherbe	Aksum (Äthiopien)
30524, 22	Scherben	Scherbe	Aksum (Äthiopien)
30524, 23	Scherben	Scherbe	Aksum (Äthiopien)
30524, 24	Scherben	Scherbe	Aksum (Äthiopien)
30524, 25	Scherben	Scherbe	Aksum (Äthiopien)
30524, 26	Scherben	Scherbe	Aksum (Äthiopien)
30524, 27 a	Scherben	Scherbe	Aksum (Äthiopien)
30524, 27 b	Scherben	Scherbe	Aksum (Äthiopien)
30524, 28	Scherben	Scherbe	Aksum (Äthiopien)
30524, 29	Scherben	Scherbe	Aksum (Äthiopien)
30524, 30	Scherben	Scherbe	Aksum (Äthiopien)
30524, 31	Scherben	Scherbe	Aksum (Äthiopien)
30524, 32	Scherben	Scherbe	Aksum (Äthiopien)
30524, 33	Scherben	Scherbe	Aksum (Äthiopien)
30524, 34	Scherben	Scherbe	Aksum (Äthiopien)
30524, 35	Scherben	Scherbe	Aksum (Äthiopien)
30524, 36	Scherben	Scherbe	Aksum (Äthiopien)
30524, 37	Scherben	Scherbe	Aksum (Äthiopien)
30524, 38	Scherben	Scherbe	Aksum (Äthiopien)

Ident. Nr.	Sachbegriff	Titel	Geogr. Bezug
30524, 39	Scherben	Scherbe	Aksum (Äthiopien)
30524, 40	Scherben	Scherbe	Aksum (Äthiopien)
30524, 41	Scherben	Scherbe	Aksum (Äthiopien)
30524, 42	Scherben	Scherbe	Aksum (Äthiopien)
30524, 43	Scherben	Scherbe	Aksum (Äthiopien)
30524, 44	Scherben	Scherbe	Aksum (Äthiopien)
30524, 45	Scherben	Scherbe	Aksum (Äthiopien)
30524, 46	Scherben	Scherbe	Aksum (Äthiopien)
30524, 47	Scherben	Scherbe	Aksum (Äthiopien)
30524, 48	Scherben	Scherbe	Aksum (Äthiopien)
30524, 49	Scherben	Scherbe	Aksum (Äthiopien)
30524, 50	Scherben	Scherbe	Aksum (Äthiopien)
30524, 51	Scherben	Scherbe	Aksum (Äthiopien)
30524, 52	Scherben	Scherbe	Aksum (Äthiopien)
30524, 53	Scherben	Scherbe	Aksum (Äthiopien)
30524, 54	Scherben	Scherbe	Aksum (Äthiopien)
30524, 55	Scherben	Scherbe	Aksum (Äthiopien)
30524, 56	Scherben	Scherbe	Aksum (Äthiopien)
30524, 57	Scherben	Scherbe	Aksum (Äthiopien)
30524, 58	Scherben	Scherbe	Aksum (Äthiopien)
30524, 59	Scherben	Scherbe	Aksum (Äthiopien)
30524, 60	Scherben	Scherbe	Aksum (Äthiopien)
30524, 61	Scherben	Scherbe	Aksum (Äthiopien)
30524, 62	Scherben	Scherbe	Aksum (Äthiopien)
30524, 63	Scherben	Scherbe	Aksum (Äthiopien)
30524, 64	Scherben	Scherbe	Aksum (Äthiopien)
30524, 65	Scherben	Scherbe	Aksum (Äthiopien)
30524, 66	Scherben	Scherbe	Aksum (Äthiopien)
30524, 67	Scherben	Scherbe	Aksum (Äthiopien)
30524, 68	Scherben	Scherbe	Aksum (Äthiopien)
30524, 69	Scherben	Scherbe	Aksum (Äthiopien)
30524, 70	Scherben	Scherbe	Aksum (Äthiopien)
30524, 71	Scherben	Scherbe	Aksum (Äthiopien)
30524, 72	Scherben	Scherbe	Aksum (Äthiopien)
30524, 73	Scherben	Scherbe	Aksum (Äthiopien)
30524, 74	Scherben	Scherbe	Aksum (Äthiopien)
30524, 74 b	Scherben	Scherbe	Aksum (Äthiopien)
30524, 75	Scherben	Scherbe	Aksum (Äthiopien)
30524, 76	Scherben	Scherbe	Aksum (Äthiopien)
30524, 77	Scherben	Scherbe	Aksum (Äthiopien)
30524, 78	Scherben	Scherbe	Aksum (Äthiopien)
30524, 79	Scherben	Scherbe	Aksum (Äthiopien)
30524, 80	Scherben	Scherbe	Aksum (Äthiopien)
30524, 81	Scherben	Scherbe	Aksum (Äthiopien)

Ident. Nr.	Sachbegriff	Titel	Geogr. Bezug
30524, 82	Scherben	Scherbe	Aksum (Äthiopien)
30524, 83	Scherben	Scherbe	Aksum (Äthiopien)
30524, 84	Scherben	Scherbe	Aksum (Äthiopien)
30524, 85	Trachtteile	Teil einer Gewandnadel	Aksum (Äthiopien)
30524, 86	Scherben	Scherbe	Aksum (Äthiopien)
30524, 87	Scherben	Scherbe	Aksum (Äthiopien)
30524, 88	Scherben	Scherbe	Aksum (Äthiopien)
30524, 89	Scherben	Scherbe	Aksum (Äthiopien)
30524, 90	Scherben	Scherbe	Aksum (Äthiopien)
30524, 91	Scherben	Scherbe	Aksum (Äthiopien)
30524, 92	Scherben	Scherbe	Aksum (Äthiopien)
30524, 93	Scherben	Scherbe	Aksum (Äthiopien)
30524, 94	Scherben	Scherbe	Aksum (Äthiopien)
30524, 95	Scherben	Scherbe	Aksum (Äthiopien)
30524, 96 a	Scherben	Scherbe	Aksum (Äthiopien)
30524, 96 b	Scherben	Scherbe	Aksum (Äthiopien)
30524, 96 c	Scherben	Scherbe	Aksum (Äthiopien)
30524, 96 d	Scherben	Scherbe	Aksum (Äthiopien)
30524, 97	Gerät	Fragmente eines Steingegenstandes	Aksum (Äthiopien)
30524, 98	Gerät	Fragmente eines Steingegenstandes	Aksum (Äthiopien)
30524, 99	Gerät	Fragmente eines Steingegenstandes	Aksum (Äthiopien)
30524, 100	Gerät	Fragmente eines Steingegenstandes	Aksum (Äthiopien)
30524, 101	Gerät	Fragmente eines Steingegenstandes	Aksum (Äthiopien)
30524, 102	Gerät	Kügelchen	Aksum (Äthiopien)
30524, 103	Werkzeug	Steinbeil	Aksum (Äthiopien)
30524, 104	Rundplastik	Fragment eines Idols	Aksum (Äthiopien)
30524, 105	Bauglieder	Fragment einer Marmorarchitektur	Aksum (Äthiopien)
30524, 106	Gerät	Fragment eines Steingegenstandes	Aksum (Äthiopien)
30524, 107	Toilettengerät	Ohrlöffel am Ring	Aksum (Äthiopien)
30524, 108	Toilettengerät	Nagelkratzer	Aksum (Äthiopien)
30524, 109	Gerät	Vergoldeter Griff	Aksum (Äthiopien)
30524, 110	Gerät	Bronzeknauf	Aksum (Äthiopien)
30524, 111	Knopf	Zierknopf	Aksum (Äthiopien)
30524, 112	Trachtteile	Gewandnadel	Aksum (Äthiopien)
30524, 113	Pfeilspitze	Pfeilspitze	Aksum (Äthiopien)
30524, 114	Gerät	Eisenteile	Aksum (Äthiopien)
30524, 115	Gerät	Eisenteile	Aksum (Äthiopien)
30524, 116	Gerät	Eisenplatte	Aksum (Äthiopien)
30524, 117 a	Scherben	Glasscherben	Aksum (Äthiopien)

Ident. Nr.	Sachbegriff	Titel	Geogr. Bezug
30524, 117 b	Scherben	Glasscherben	Aksum (Äthiopien)
30524, 117 c	Scherben	Glasscherben	Aksum (Äthiopien)
30524, 117 d	Scherben	Glasscherben	Aksum (Äthiopien)
30524, 117 e	Scherben	Glasscherben	Aksum (Äthiopien)
30524, 118	Scherben	Glasscherben	Aksum (Äthiopien [Komm.: „Gebramaskal, oberhalb des Grabes in der Nord-Ost-Ecke, zusammen mit 2 Münzen".]
30524, 119	Scherben	Glasscherben	Aksum (Äthiopien) [Komm.: „Gebramaskal, oberhalb des Grabes in der Nord-Ost-Ecke, zusammen mit 2 Münzen".]
30524, 120	Scherben	Glasscherben	Aksum (Äthiopien) [Komm.: „Gebramaskal, oberhalb des Grabes in der Nord-Ost-Ecke, zusammen mit 2 Münzen".]
30524, 121	Scherben	Glasscherben	Aksum (Äthiopien) [Komm.: „Gebramaskal, oberhalb des Grabes in der Nord-Ost-Ecke, zusammen mit 2 Münzen".]
30524, 122	Scherben	Glasscherben	Aksum (Äthiopien) [Komm.: „Gebramaskal, oberhalb des Grabes in der Nord-Ost-Ecke, zusammen mit 2 Münzen".]
30524, 123	Schmuck	Glasperle	Aksum (Äthiopien)
30524, 124	Scherben	zwei Glasscherben	Aksum (Äthiopien)
30524, 125	Schmuck	drei Muscheln	Aksum (Äthiopien)
30524, 126	Wandverkleidung	Stuckprobe	Aksum (Äthiopien)
30524, 127		zwei Lavabruchstücke	Aksum (Äthiopien)