

# MOSTAGEDDA 1874 AND GUROB 23: NOTES ON SOME RECENT RADIOCARBON DATES AND THEIR IMPORTANCE FOR EGYPTIAN ARCHAEOLOGY AND CHRONOLOGY<sup>1</sup>

By Astrid Hassler and Felix Höflmayer

## 1. INTRODUCTION

Radiocarbon in Egyptology is still not a very common tool for dating archaeological contexts. For the New Kingdom, there are still too few sites where well selected short-lived samples from reliable contexts have been collected and tested or where a sequence of radiocarbon dates exists. Reliable data are known from the settlement of Tell el-Amarna;<sup>2</sup> perhaps the biggest assemblage of radiocarbon dates from a single site in Egypt is the soon to be published sequence from Tell el-Dab<sup>c</sup>a. However, not all dates confirm the historical chronology of Egypt, in fact the Tell el-Dab<sup>c</sup>a sequence seems to have a remarkable offset of about 100 to 120 years compared to the dates assigned by the excavators.<sup>3</sup> More radiocarbon dates from well-dated contexts are needed in order to check the reliability of the Egyptian historical chronology and to check whether any environmental influences may affect the relative amount of radiocarbon of the respective sample (such as, for example, any possible reservoir effect due to groundwater from the Nile in the case of the Tell el-Dab<sup>c</sup>a sequence). On the whole, every single addition to the existing limited corpus of radiocarbon data is most welcome.

A recent contribution by Jenefer Cockitt and Ann Rosalie David published in *Current Research in Egyptology* 2007 provides us with more high-quality radiocarbon data from four burials ranging from the late First Intermediate Period up to the 29<sup>th</sup> Dynasty.<sup>4</sup> Although the selected samples (mostly parts of mummies) should be representative for the time of the burial, two cases

(Mostagedda 1874 and Gurob 23) offer dates which seem to be in conflict with the archaeological interpretation. However, Cockitt and David argue that these contexts are to be dated according to the respective radiocarbon evidence. In the following, we would like to discuss both contexts and present evidence that the published radiocarbon dates and the archaeological evidence are in conflict. In the case of Mostagedda 1874 the observable radiocarbon offset might require the same (as yet unknown) explanation as the comparably higher radiocarbon dates for the early Late Bronze Age in the Aegean, whereas in the case of Gurob 23 no explanation can be offered at present.

## 2. MOSTAGEDDA 1874

The site of Mostagedda was excavated by the British Museum Expedition to Middle Egypt in the late 1920s and published by Guy Brunton in 1937.<sup>5</sup> According to the excavator burial 1874 was found undisturbed and consisted of a female body with plaited hair, a wooden coffin, cloth wrappings, several beads and two scarabs, two stone and two pottery vessels (a bowl and a beaker jar). Beads and scarabs were found at the neck, whereas the stone vessels were found behind the pelvis. The pottery bowl was found inverted over the beaker jar.<sup>6</sup> Both stone vessels, a *kohl*-pot and a miniature drop-shaped alabastron, were drawn and published,<sup>7</sup> whereas for the pottery vessels only drawings of the respective types exist. The bowl belongs to type 7G,<sup>8</sup> the jar to type 20F<sup>9</sup> of the BSAE New Kingdom pottery corpus. The

<sup>1</sup> We wish to thank Neal Spencer and the curators of the Department of Ancient Egypt and Sudan of the British Museum for their help, Anne Seiler for useful remarks concerning Mostagedda 1874 and David Aston for comments on Gurob 23 and for checking our English.

<sup>2</sup> SWITSUR 1984; HASSAN & ROBINSON 1987.

<sup>3</sup> See WIENER 2006, 332 fig. 2.

<sup>4</sup> COCKITT & DAVID 2007.

<sup>5</sup> BRUNTON 1937.

<sup>6</sup> BRUNTON 1937, 134, pl. 70 no. 1874 and pl. 71a no. 1874.

<sup>7</sup> BRUNTON 1937, pl. 68 no. 35 and 44.

<sup>8</sup> Type published in: BRUNTON & ENGELBACH 1927, pl. 33.

<sup>9</sup> Type published in: ENGELBACH 1923, pl. 42.

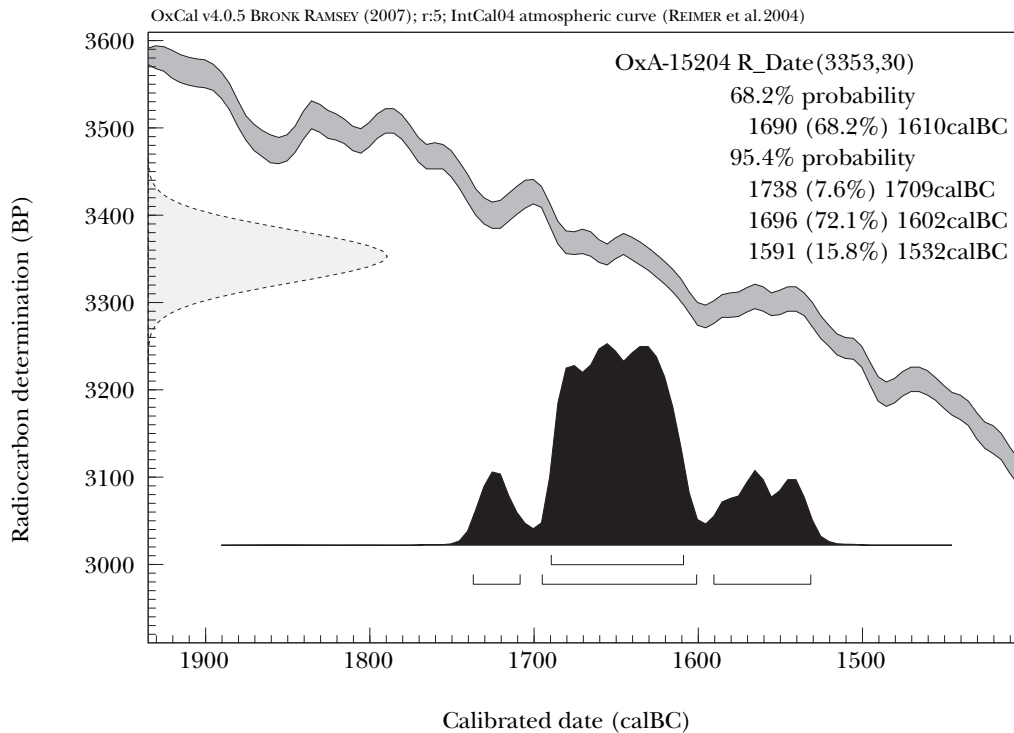


Fig. 1 Calibrated date range for the sample from Mostagedda 1874. Calibration was done using OxCal 4.0.5 (BRONK RAMSEY 1995; BRONK RAMSEY 2001) and the internationally recommended IntCal04 radiocarbon calibration data set (REIMER *et al.* 2004)

bases of both scarabs are unmarked.<sup>10</sup> Today these objects are held by the Department of Ancient Egypt and Sudan of the British Museum.<sup>11</sup>

A single hair sample from the head of the burial was submitted to Oxford Radiocarbon Accelerator Unit (ORAU) for radiocarbon dating.<sup>12</sup> The calibrated date range for this sample is 1690–1610 at the 1 $\sigma$ -margin and 1738–1709 (7.6%), 1696–1602 (72.1%) or 1591–1532 (15.8%) at 2 $\sigma$ . The calibrated radiocarbon age therefore suggests a date for this burial in the late 13<sup>th</sup> Dynasty or the very early Hyksos period (see Fig. 1).<sup>13</sup> Instead of accepting this date uncritically, one should at least take into consideration the associated grave goods to check whether or not this date can be substantiated. In the publication this tomb is list-

ed under the heading ‘Second Intermediate Period and Pan-Graves’.<sup>14</sup>

Suggesting a precise date for this burial based on the associated objects is not easy but some arguments may be put forward which seem to imply a date in the early New Kingdom. The overall form of the pottery vessel 20F (Fig. 2a, b) finds parallels in contexts of the 17<sup>th</sup> Dynasty,<sup>15</sup> but this type is still represented in the early 18<sup>th</sup> Dynasty up to the time of Thutmose III. It occurs in Badari cemetery 5500, tomb 5545 together with pottery of the 18<sup>th</sup> Dynasty, an imported *Base Ring* juglet, and a scarab with the name of Thutmose III.<sup>16</sup> Robert Merrillees dated this burial to his pottery phases A and/or B of the 18<sup>th</sup> Dynasty (Ahmose to Thutmose III), however later materi-

<sup>10</sup> BRUNTON 1937, pl. 69 no. 46, 47.

<sup>11</sup> Regrettably the current whereabouts of pottery vessel 7G are unknown.

<sup>12</sup> COCKITT & DAVID 2007, 47–49.

<sup>13</sup> KITCHEN 2000, 49.

<sup>14</sup> BRUNTON 1937, pl. 70. It has to be noted that although Cockitt and David based their conclusions on the

assumption that this burial belongs to the pan-grave culture nothing in the excavation report can be found to confirm this statement. In fact, burial 1874 is *not* marked as a pan-grave in the tomb register.

<sup>15</sup> See SEILER 2005, Faltafel 6 no. 4.

<sup>16</sup> Tomb register: BRUNTON 1930, pl. 23; Scarab: BRUNTON 1930, pl. 34 no. 19.

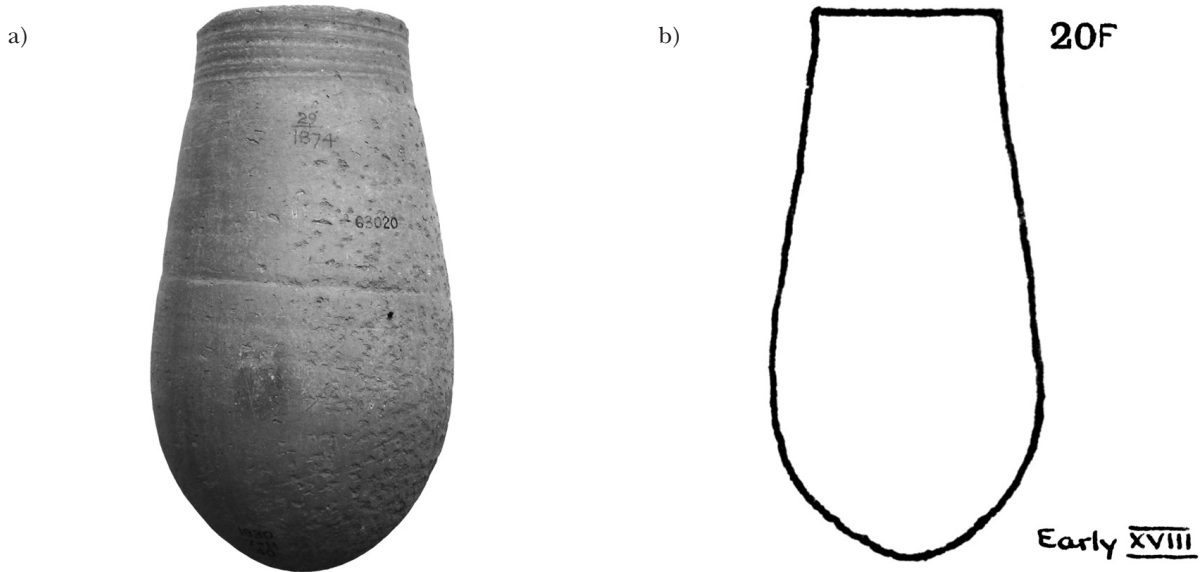


Fig. 2 a) Mostagedda 1874: BM EA 63020. Height: 19.4 cm; Diameter (rim): 7.7 cm. (Courtesy of British Museum);  
 b) Pottery type 20F of the BSAE New Kingdom pottery corpus (after ENGELBACH 1923, pl. 42 type 20F)

al of the 19<sup>th</sup> Dynasty was found as well.<sup>17</sup> Another example of pottery type 20F was found in an intrusive burial of the New Kingdom in Qau, south cemetery burial 316<sup>18</sup> together with *Red Lustrous Wheel-Made* ware.<sup>19</sup> Merrillees dated this

tomb to pottery phase A of the 18<sup>th</sup> Dynasty (Ahmose to Thutmose II).<sup>20</sup>

The small calcite *kohl*-pot is typical for the early 18<sup>th</sup> Dynasty as well (Fig. 3a, b). In the early New Kingdom these pots tend to have much thinner

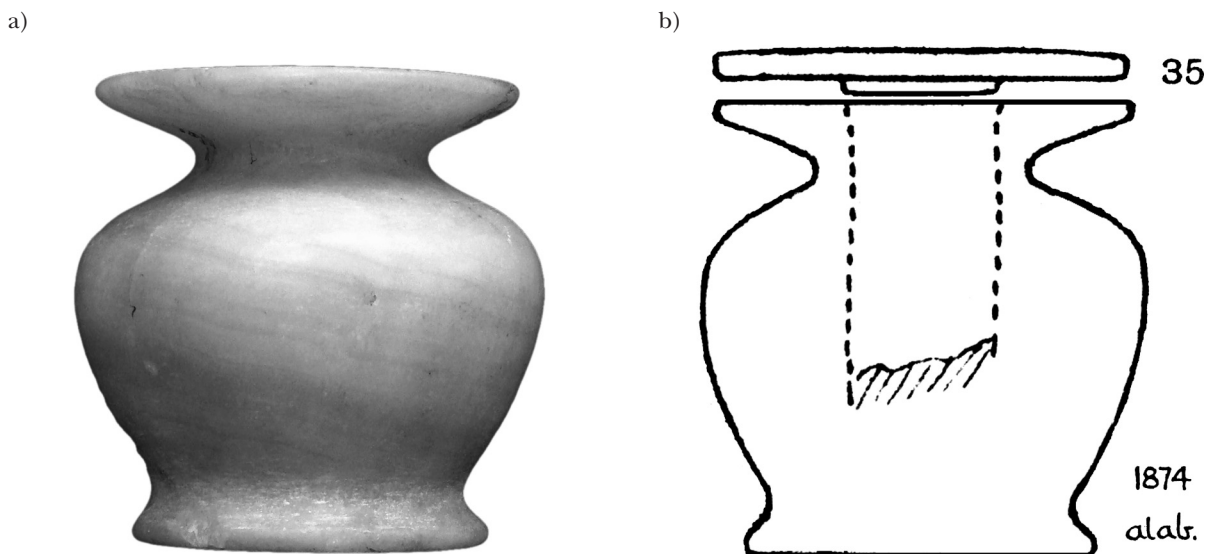


Fig. 3 a) Mostagedda 1874: BM EA 63345. Height: 6.3 cm; Diameter (rim): 5.6 cm. (Courtesy of British Museum);  
 b) Mostagedda 1874 (after BRUNTON 1937, pl. 68 no. 35)

<sup>17</sup> MERRILLEES 1968, 92.

<sup>18</sup> Tomb register: BRUNTON 1930, pl. 22.

<sup>19</sup> ERIKSSON 1993, 192 cat. no. 184.

<sup>20</sup> MERRILLEES 1968, 91.

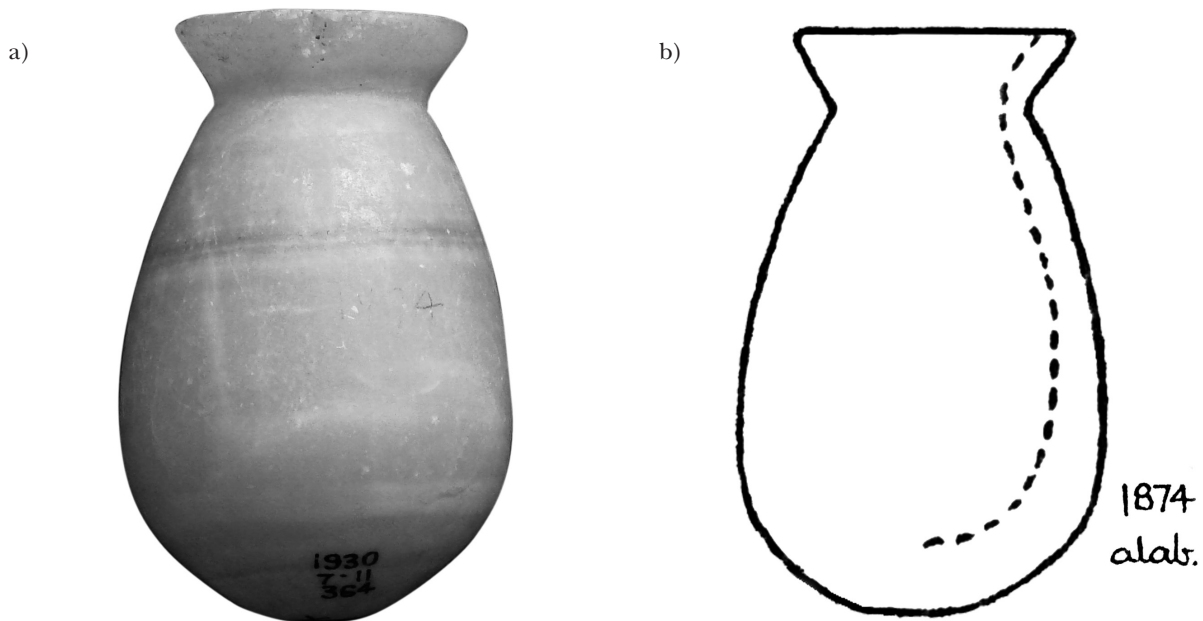


Fig. 4 a) Mostagedda 1874: BM EA 63341. Height: 5.7 cm; Diameter (rim): 2.9 cm. (Courtesy of British Museum);  
b) Mostagedda 1874 (after BRUNTON 1937, pl. 68 no. 44)

and more everted rims compared to earlier types.<sup>21</sup> This vessel belongs to Barbara Aston's type 164, which is dated to the early 18<sup>th</sup> Dynasty.<sup>22</sup> Another feature of late *kohl*-pots is that the interior is not carved out but is just a simple cylindrical tubular hole.<sup>23</sup> A *kohl*-pot belonging to the same type was found in Gurob 245 together with an imported Mycenaean alabastron dateable to LH IIA.<sup>24</sup> This tomb can be dated to the early 18<sup>th</sup> Dynasty up to the time of Thutmose III.<sup>25</sup> These types are also known in the Levant from MB IIC to LB IA contexts.<sup>26</sup>

The small drop-shaped alabastron seems to be an earlier type and unfortunately cannot be dated very precisely (Fig. 4a, b). It resembles Barbara Aston's type 146, which is dated to the Middle Kingdom and the Second Intermediate Period.<sup>27</sup> Similar vessels are also known in the Levant from MB IIC contexts.<sup>28</sup>

However, according to the pottery and the *kohl*-pot, a date in the early 18<sup>th</sup> Dynasty up to the times of Thutmose III seems likely. The historical chronology of the New Kingdom is regarded as being relatively precise and the beginning of the 18<sup>th</sup> Dynasty can be dated to 1550/39.<sup>29</sup> A rather broad date range for burial Mostagedda 1874 from 1550 down to the times of Thutmose III (sometime after 1479)<sup>30</sup> may be proposed here. Although a date in the very beginning of the 18<sup>th</sup> Dynasty might be still compatible with the very youngest side of the 2 $\sigma$ -margin of the calibrated date range, it is clear that the highest probability lies well before the possible date range suggested by archaeological dating (see Fig. 1).

It is interesting to note that the uncalibrated date for this burial is similar to dates which are regarded as representative for the Santorini eruption in the late LM IA period. Mostagedda 1874

<sup>21</sup> B.G. ASTON 1994, 147–148 types 163–164; SPARKS 2007, 53.

<sup>22</sup> B.G. ASTON 1994, 148 type 164.

<sup>23</sup> BOURRIAU 1991, 139; D. ASTON 2003, 207; SPARKS 2007, 53.

<sup>24</sup> BRUNTON & ENGELBACH 1927, 13, pls. 14 no. 4; 24 no. 245; 45 no. 245.

<sup>25</sup> BRUNTON & ENGELBACH 1927, pl. 24; MERRILLEES 1968, 195; KEMP & MERRILLEES 1980, 242; WARREN & HANKEY 1989, 144; WARREN 2006, 313.

<sup>26</sup> See SPARKS 2007, 318–319 nos. 475–492.

<sup>27</sup> B.G. ASTON 1994, 142 type 146.

<sup>28</sup> SPARKS 2007, 287 no. 89 and 97.

<sup>29</sup> HELCK 1987; HORNUNG 1987; KITCHEN 1987; BECKERATH 1997; KITCHEN 2000; KITCHEN 2002; HORNUNG, KRAUSS & WARBURTON 2006; MÜLLER 2006; KITCHEN 2007.

<sup>30</sup> KITCHEN 2000, 49.

has a radiocarbon age of  $3353 \pm 30$ ,<sup>31</sup> whereas the Santorini eruption has an uncalibrated age of  $3344.9 \pm 4.5$  according to the model put forward by Sturt Manning and others.<sup>32</sup> It is a well known fact that the absolute date for the Santorini eruption is disputed and that archaeology offers dates 100 to 120 years younger compared to radiocarbon.<sup>33</sup> The archaeological date of the eruption is based on dateable Egyptian material found in Aegean contexts and *vice versa*. According to the synchronisation of the Aegean relative chronology with Egypt, Thera erupted in the early 18<sup>th</sup> Dynasty, perhaps somewhere between 1550 and 1500. In this respect it is interesting, that this single date from Mostagedda 1874 reflects the same offset as the early Late Bronze Age dates from the Aegean. Of course more dates from early New Kingdom contexts are needed to confirm or alter this picture. But if this impression holds true, one has to explain a phenomenon that affects dates in the entire Eastern Mediterranean.

### 3. GUROB 23

Tomb 23, or ‘the tomb of Res’, as it is frequently called, was discovered by Flinders Petrie in his first season at Tell Abu Gurob in the winter of 1888–1889.<sup>34</sup> The tomb belongs to a cemetery which is located beneath the Ramesside town and may be connected to this phase of Gurob’s history. However, the foundation of the town took place in an earlier period, namely the time of Thutmose III,<sup>35</sup> habitation continuing during the later 18<sup>th</sup> Dynasty<sup>36</sup> and Ramesside times. The tombs are quite plain, consisting of a tomb shaft and a single chamber, while in some cases two chambers with two different burials are sharing one shaft.<sup>37</sup>

Tombs 22 and 23 were found sharing the same shaft, being situated opposite each other.<sup>38</sup> Due to Petrie’s thoughts about the two tombs on the one hand and some confusion in the differentiation of the finds from both tombs on the other, one must not consider tomb 23 as a completely closed context, though it was found undisturbed, but also have a look at the situation of tomb 22.

Petrie describes the first of the two tombs (22) as being occupied by a badly decayed wooden coffin with light yellow hieroglyphs and decoration on a black ground. He mentions that, although it was difficult to read the crumbling inscriptions, he could make out the name of the owner of the coffin, Amenemopet. Two eyes made of alabaster and glass paste are described as belonging to this coffin. Inside was a body with a small statuette lying on its breast.<sup>39</sup> The translation of the inscription being situated on the base of the statuette is slightly problematic, but mentions again the name Amenemopet and her daughter Res.<sup>40</sup> Thus Petrie deduced that tomb 22 was owned by a woman named Amenemopet, who apparently, following the inscription on the coffin, was a functionary of the domain of the god Amun. He also found a broken headrest inside the coffin and a ring made of bronze, situated on the fore finger of the mummy’s left hand. Outside the coffin itself, standing to the left and right of its feet, two pottery jars were found.<sup>41</sup>

Tomb 23 also contained a coffin, though Petrie does not mention its design in the publication. It was occupied by a body with light hair and a copious black wig, which covered the fair, natural hair. Petrie was fascinated by this fact and made it the basis for his theory that there must have been a

<sup>31</sup> COCKITT & DAVID 2007, 48 fig. 3, 49.

<sup>32</sup> MANNING, BRONK RAMSEY, KUTSCHERA, HIGHAM, KROMER, STEIER & WILD 2006, 567 fig. 2. A slightly younger date is proposed by Walter Friedrich and others, see FRIEDRICH, KROMER, FRIEDRICH, HEINEMEIER, PFEIFFER & TALAMO 2006. Further dates from a coastal context at Palaikastro, Crete, which is regarded to represent the effect of a tsunami triggered by the eruption come down to  $3350 \pm 25$ , see BRUINS, MACGILLIVRAY, SYNOLAKIS, BENJAMINI, KELLER, KISCH, KLÜGEL & VAN DER PFLICHT 2008, 207.

<sup>33</sup> See WARREN 2006; BIETAK & HÖFLMAYER 2007; WIENER 2007 with references.

<sup>34</sup> PETRIE 1890, 38–39.

<sup>35</sup> BRUNTON & ENGELBACH 1927, 3, pl. 48 no. 1 mention and illustrate a large number of bricks from the tem-

ple, which were stamped with this king’s name. See also KEMP 1978 for a re-interpretation of the temple as a palace. PETRIE 1890, 32, pl. 22 no. 2 and PETRIE 1891, 20, pl. 24 no. 3 mention two stone lintels bearing the name of Thutmose III.

<sup>36</sup> Indicated for example by the ebony head of Queen Tiy, found by Ludwig Borchardt in 1911, see BORCHARDT 1911.

<sup>37</sup> PETRIE 1890, 38–39.

<sup>38</sup> PETRIE 1890, 38.

<sup>39</sup> PETRIE 1890, 38–39.

<sup>40</sup> Note that this is Petrie’s reading of the text. In her dissertation, Martha Bell has proposed another interpretation (BELL 1991, 27), calling Res the father of Amenemopet.

<sup>41</sup> PETRIE 1890, 38–39.



Fig. 5 Gurob 23 (PETRIE 1890, pl. 28 no. 1)

foreign community in the town of Gurob.<sup>42</sup> As in tomb 22, the body had a bronze ring on its left fore finger, and beneath its head Petrie found two broken *kohl*-tubes made of reed and a *kohl*-stick; at the body's feet he traced a rotten ushabti. Very important for further consideration of the date of this tomb is the discovery of a Mycenaean stirrup jar next to the head of the body.<sup>43</sup>

As tomb 23 was in the immediate vicinity of tomb 22, in fact sharing the same shaft, Petrie deduced, that the person 'Res', who was mentioned on the statue-base found in tomb 22 must be the owner of tomb 23, thus in the publication he called it the 'tomb of Res'.<sup>44</sup> However, no object in tomb 23 mentions this name, thus making any relationship between the two bodies as well as a sequence of the two burials (Res being the daughter of Amenemopet) theoretical at most.

The contents of both tombs were distributed to various museums and not all of the finds are possible to trace nowadays. Consequently, one has to rely on the accuracy of the drawings in the publication in some cases.

The following finds can be located:

Wooden statuette from tomb 22: Cairo Museum, JdE 28748, CG 814<sup>45</sup>

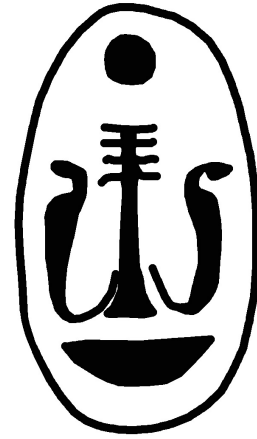


Fig. 6 Gurob 23 (PETRIE 1890, pl. 23 no. 77)

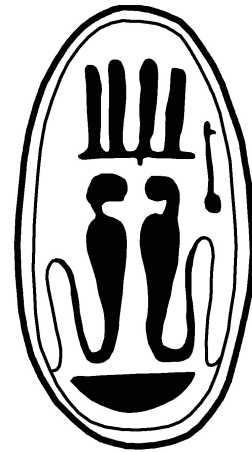


Fig. 7 Gurob 22 (PETRIE 1890, pl. 23 no. 76)

Mycenaean stirrup jar from tomb 23 (Fig. 5):  
British Museum, A987<sup>46</sup>

The bulk of the material went to Manchester Museum, though there seems to be a slight confusion concerning the origin of the respective finds, the contents of tomb 22 and 23 being mixed up in the inventory and catalogue. It mentions the following items as coming from a tomb containing a body with yellow hair and a copious black wig and being found together.

MM 705: some light yellow hair

MM 706: fragments of a wooden *kohl*-tube with incised pattern at both ends; fragments of a

<sup>42</sup> PETRIE 1890, 39–41.

<sup>43</sup> PETRIE 1890, 39.

<sup>44</sup> PETRIE 1890, 39.

<sup>45</sup> BORCHARDT 1930, 108, pl. 150 no. 814.

<sup>46</sup> FORSDYKE 1925, 132–133, fig. 256.

reed *kohl*-tube and pieces of a wooden and a bronze *kohl*-stick.

MM 707: bronze ring, found on the finger of the mummy: the bezel is said to show two uraei over a *nb*-sign, between them a *dd*-pillar and surmounted by the sun disc (Fig. 6).

The next two items are explicitly listed as belonging to the tomb of Res.<sup>47</sup>

MM 708: Eyes from a coffin made of alabaster, black stone and glass.

MM 709: Bronze ring, found on the finger of the mummy, the bezel showing two crowned uraei over a *nb*-sign and flanked on one side by a *nfr*-sign (Fig. 7).

However, looking at Petrie's descriptions and drawings, one clearly sees that the two rings must have been transposed, as the description of Res' ring fits the one from tomb 22 and *vice versa*.<sup>48</sup> Additionally, the alabaster eyes belong to the coffin of tomb 22<sup>49</sup> and not to the tomb of Res. Note that the catalogue does not mention tomb 23 (or tomb of Res) as the origin of the light hair and the toilet objects. (Apparently, as it was of great importance for his theory about foreigners in Gurob, Petrie kept some of the yellow hair deriving from the tombs for his study collection; today, it is held by the Petrie Collection of University College London.<sup>50</sup>)

Whether this problem derived from Petrie's publication, i.e. that he mixed up his own notes about the find spots of the objects, or whether there was any confusion during the registration process in Manchester is not clear. In consequence, one cannot clearly differentiate between the two tombs anymore; therefore it is necessary to treat the finds of both graves as a kind of entity.

On the other hand, the find spot of the Mycenaean stirrup jar is fairly secure, as Petrie mentions the moment of discovery in the publication.<sup>51</sup> The vessel is a complete globular stirrup jar FS 171. Body decoration is painted in orange colour which is worn off in some places. The slightly domed disc on top of the false neck is decorated with concentric circles; the two fully painted handles have two reserved triangles. The spout reaches almost up to the disc, the space in between is very narrow. There is a painted band around the foot of the spout and false neck, the lip of the spout shows slight traces of paint. The body itself is decorated with two groups of thin lines flanked by broad ones, the ring base is painted. Whether or not there are concentric circles on the base cannot be said at present. The vessel can be dated to LH IIIA2 or LH IIIB;<sup>52</sup> due to the domed disk and the single band around spout and false neck it seems more probable to date the piece to the phase LH IIIB.

How can we date tomb 22 and 23? As we do not have any sign of a king's name in both of the tombs, we have to rely on the other objects found in the graves, turning our attention towards the possibilities of dating them through stylistic attributes:

Two broad necked pottery jars are said to come from tomb 22, Petrie shows one of them in his publication (Fig. 8);<sup>53</sup> where they are today is not known. The jars find very close parallels in the Ramesside city of Piramesse/Qantir<sup>54</sup> as well as in Sedment<sup>55</sup> and Harageh.<sup>56</sup> Therefore, a 19<sup>th</sup> Dynasty date is proposed here for the vessels from tomb 22.

Tomb 23 held two neckless slender storage jars, one example is shown by Petrie (Fig. 9),<sup>57</sup> and the whereabouts are unknown. Parallels are

<sup>47</sup> GRIFFITH 1910, 62.

<sup>48</sup> PETRIE 1890, pl. 23 no. 76 and 77.

<sup>49</sup> PETRIE 1890, 39.

<sup>50</sup> UC 30137–30139 are three samples of long, yellow curly hair, said to be coming from Gurob; unfortunately, there seems to be an uncertainty about the exact origin of the material. The database entries give as find spot tomb 23 or 24; PETRIE 1890, 39 states, that the body in tomb 24 also had yellow hair. Moreover, the UCL hair samples do not resemble the material from Manchester, as this hair is very short and straight; as Petrie does not mention the exact appearance of the

natural hair, it may be at least problematic to find out the true place of origin.

<sup>51</sup> PETRIE 1890, 45.

<sup>52</sup> STUBBINGS 1951, 94; WACE 1957, 221, fig. 3; BUCHHOLZ 1974, 445; HALL 1980, 30; BELL 1983, 79; WARREN & HANKEY 1989, 148; BELL 1991, 25.

<sup>53</sup> PETRIE 1890, pl. 21 no. 62.

<sup>54</sup> D. ASTON 1998, 309 no. 983.

<sup>55</sup> PETRIE & BRUNTON 1924, pl. 61 no. 85.

<sup>56</sup> ENGELBACH 1923, pl. 44 type 39N.

<sup>57</sup> PETRIE 1890, pl. 21 no. 49.

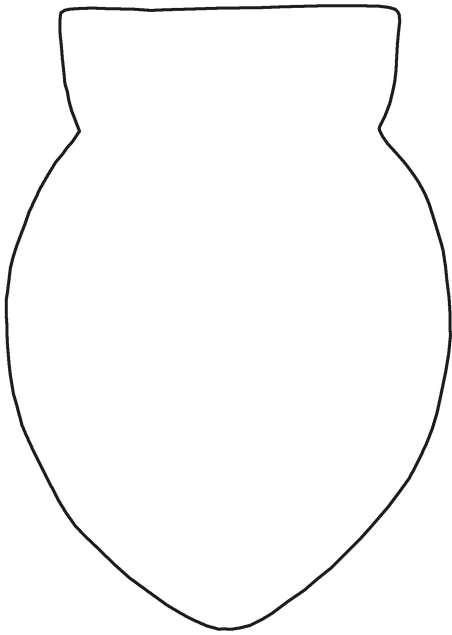


Fig. 8 Gurob 22 (PETRIE 1890, pl. 21 no. 62)

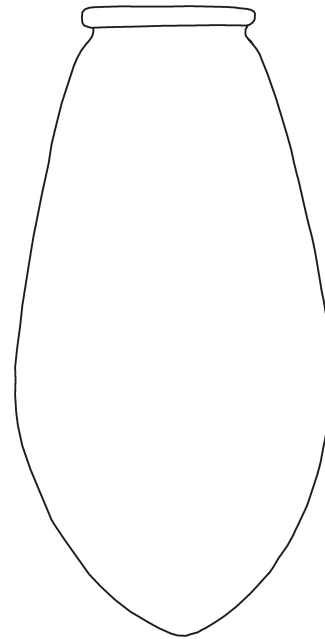


Fig. 9 Gurob 23 (PETRIE 1890, pl. 21 no. 49)

to be found in Piramesse/Qantir,<sup>58</sup> Saqqara,<sup>59</sup> Tell el-Amarna<sup>60</sup> and Deir el-Medineh.<sup>61</sup> Therefore, the vessels from tomb 23 should be placed in the late 18<sup>th</sup> or early 19<sup>th</sup> Dynasty.

Additionally, Petrie mentions a yellow-on-black coffin in tomb 22. This kind of coffin is in use from the early 18<sup>th</sup> Dynasty onwards until the post-Amarna period;<sup>62</sup> at least, this is the case for the capital city of Thebes. In Gurob however, a town which has to be considered more provincial, this kind of coffin style shows up quite frequently and was used at least until the time of Ramesses II, as for example tomb 605 from this area clearly shows.<sup>63</sup> For this reason, the find of this kind of coffin in tomb 22 does not contradict a date in the 19<sup>th</sup> Dynasty, but, considering the parallels as well as the pottery dates, recommends it.

Neither the two rings<sup>64</sup> nor the other pieces are closely dateable, so one has to rely on the dates provided by the pottery and the coffin. In consequence, and considering also the Mycenaean stirrup jar, the two tombs have to be dated to the 19<sup>th</sup> Dynasty, as Petrie has already proposed.

A hair sample from tomb 23 was submitted to ORAU for radiocarbon dating.<sup>65</sup> The results are 1501–1441 at the 1 $\sigma$ -margin and 1598–1595 (0.3 %), 1531–1415 (95.1 %) at 2 $\sigma$  (Fig. 10), which equates with the Thutmoside period in the early to mid 18<sup>th</sup> Dynasty.<sup>66</sup> It is clear that these dates are in conflict with the archaeological dating as the 19<sup>th</sup> Dynasty started about 1295 (start of Ramesses I).<sup>67</sup> Unfortunately it is not possible to explain this offset today. At least on archaeologi-

<sup>58</sup> D. ASTON 1998, 311 no. 999.

<sup>59</sup> D. ASTON 1991, pl. 48 no. 45.

<sup>60</sup> PEET & WOOLLEY 1923, pl. 25 no. 205.

<sup>61</sup> NAGEL 1938, pl. 81 no. 4.

<sup>62</sup> TAYLOR 1989, 33–34; NIWINSKI 1984, 437–438.

<sup>63</sup> BELL 1983, 65. Apart from the coffin, this tomb also contained a scarab inscribed with the name of Ramesses II, as well as a LH IIIB stirrup jar. There are several other examples of post-Thutmoside-period yellow-on-black coffins from this area, for example a coffin from Gurob tomb 21 (PETRIE 1890, 38), or a coffin from Sed-

ment grave 1955 (PETRIE & BRUNTON 1924, 31). Note that Petrie does not mention a yellow-on-black coffin for tomb 23 as Cockitt and David state in their article: COCKITT & DAVID 2007, 50.

<sup>64</sup> Parallels for MM 707 (coming from tomb 23): PETRIE & BRUNTON 1924, pl. 43, 59; BRUNTON & ENGELBACH 1927, pl. 25, tomb 227.

<sup>65</sup> COCKITT & DAVID 2007, 49–50.

<sup>66</sup> KITCHEN 2000, 49.

<sup>67</sup> KITCHEN 2000, 49.



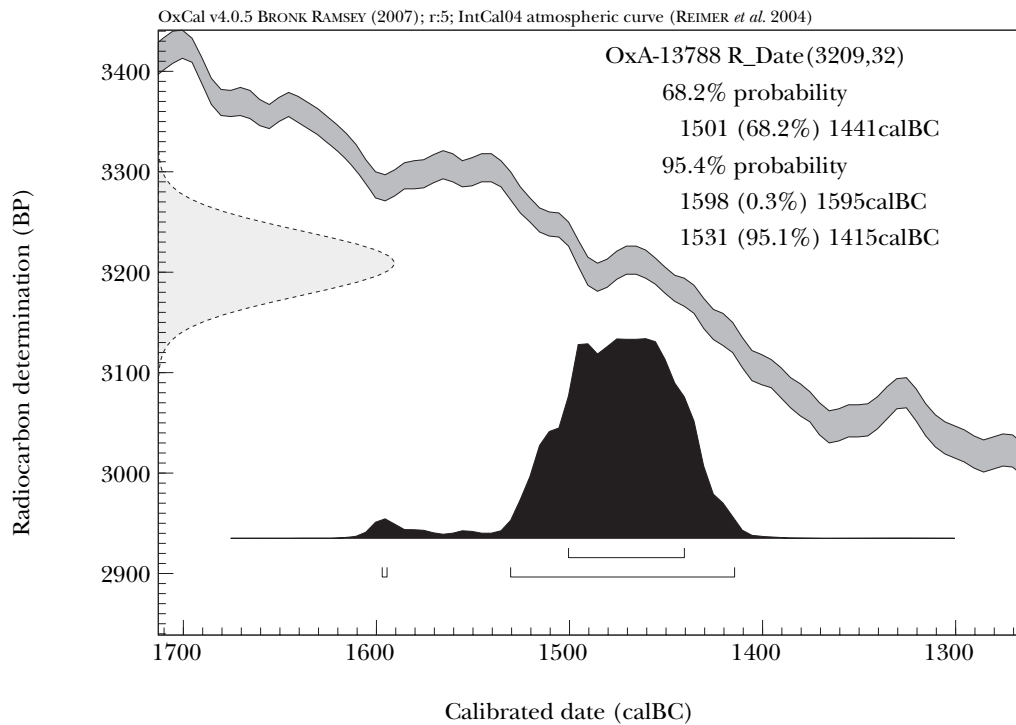


Fig. 10 Calibrated date range for the sample from Gurob 23. Calibration was done using OxCal 4.0.5 (BRONK RAMSEY 1995; BRONK RAMSEY 2001) and the internationally recommended IntCal04 radiocarbon calibration data set (REIMER *et al.* 2004)

cal grounds it seems impossible simply to apply the radiocarbon dates to these burials.

#### 4. CONCLUSIONS

Radiocarbon dating can be a very useful dating technique if well-selected samples from good (i.e. dateable) contexts are tested. However, one should not uncritically accept these dates but con-

sider the archaeological material as well. Conflicting dates may contribute to the discussion of Egypt's historical chronology and/or the dating of archaeological objects like pottery or stone vessels. Only with consequent sampling and radiocarbon dating (as at Tell el-Dab'a) this method can be reasonably applied and be a considerable helpmate for Egyptology.

## Bibliography

- ASTON, B.G.  
1994 *Ancient Egyptian Stone Vessels. Materials and Forms*, SAGA 5, Heidelberg.
- ASTON, D.A.  
1991 Pottery, 47–54, in: M.J. RAVEN, *The Tomb of Iurudéf. A Memphite Official in the Reign of Ramesses II*, EES Excavation Memoir 57, London.  
1998 *Die Keramik des Grabungsplatzes Q1*, FoRa 1, Mainz.  
2003 New Kingdom Pottery Phases as Revealed Through Well-Dated Tomb Contexts, 135–162, in: M. BIETAK (ed.), *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium BC II. Proceedings of the SCIEEM 2000 – EuroConference, Haindorf 2<sup>nd</sup> of May–7<sup>th</sup> of May 2001*, CChEM 4, Vienna.
- VON BECKERATH, J.  
1997 *Chronologie des Pharaonischen Ägypten. Die Zeitbestimmung der ägyptischen Geschichte von der Vorzeit bis 332 v. Chr.*, MÄS 46, Mainz.
- BELL, M.  
1983 Gurob Tomb 605 and Mycenaean Chronology, 61–86, in: P. POSENER-KRIEGER (ed.), *Mélanges Gamal Eddin Mokhtar*, BdE 97/1, Paris.  
1991 *The Tutankhamen Burnt Group*, Dissertation University of Chicago.
- BIETAK, M. & HÖFLMAYER, F.  
2007 Introduction: High and Low Chronology, 13–23, in: M. BIETAK & E. CZERNY (eds.), *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium BC III. Proceedings of the SCIEEM 2000 – 2<sup>nd</sup> EuroConference, Vienna, 28<sup>th</sup> of May–1<sup>st</sup> of June 2003*, CChEM 9, Vienna.
- BORCHARDT, L.  
1911 *Der Porträtkopf der Königin Teje*, Leipzig.  
1930 *Statuen und Statuetten von Königen und Privatleuten*, Catalogue Générale 1–1294, Berlin.
- BOURRIAU, J.  
1991 Relations between Egypt and Kerma during the Middle and New Kingdoms, 129–144, in: W.V. DAVIES (ed.), *Egypt and Africa: Nubia from Prehistory to Islam*, London.
- BRONK RAMSEY, C.  
1995 Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program, *Radiocarbon* 37, 425–430.  
2001 Development of the Radiocarbon Calibration Program OxCal, *Radiocarbon* 43, 355–363.
- BRUINS, H.J., MACGILLIVRAY, J.A., SYNOLAKIS, C.E., BENJAMINI, C., KELLER, J., KISCH, H.J., KLÜGEL, A. & VAN DER PFLICHT, J.  
2008 Geoarchaeological Tsunami Deposits at Palaikastro (Crete) and the Late Minoan IA Eruption of Santorini, *JAS* 35, 191–212.
- BRUNTON, G.  
1930 *Qau and Badari III*, BSAE 1926, London.  
1937 *Mostagedda and the Tasian Culture*. British Museum Expedition to Middle Egypt. First and Second Years 1928, 1929, London.
- BRUNTON, G. & ENGELBACH, R.  
1927 *Gurob*, BSAE and Egyptian Research Account Twenty-Fourth Year, 1918, London.
- BUCHHOLZ, H.G.  
1974 Ägäische Funde und Kultureinflüsse in den Randgebieten des Mittelmeers, *AA* 1974, 325–462.
- COCKITT, J.A. & DAVID, A.R.  
2007 The Radiocarbon Dating of Ancient Egyptian Mummies and Their Associated Artefacts: Implications for Egyptology, 43–53, in: M. CANNATA (ed.), *Current Research in Egyptology 2006. Proceedings of the 7<sup>th</sup> Annual Symposium which took place at the University of Oxford, April 2006*, Oxford.
- ENGELBACH, R.  
1923 *Harageh*, BSAE and Egyptian Research Account Twentieth Year, 1914.
- ERIKSSON, K.O.  
1993 *Red Lustrous Wheel-Made Ware*, SIMA 103, Jonsered.
- FORSDYKE, E.J.  
1925 *Catalogue of the Greek and Etruscan Vases in the British Museum I, Prehistoric Aegean Pottery*, London.
- FRIEDRICH, W.L., KROMER, B., FRIEDRICH, M., HEINEMEIER, J., PFEIFFER, T. & TALAMO, S.  
2006 Santorini Eruption Dated to 1627–1600 BC, *Science* 312, 548.
- GRIFFITH, A.S.  
1910 *The Manchester Museum Catalogue of Egyptian Antiquities of the XII and XVIII Dynasties from Kahun, Illahun and Gurob*, London.
- HALL, R.  
1980 A Pair of Linen Sleeves from Gurob, *GM* 40, 29–41.
- HASSAN, F.A. & S.W. ROBINSON  
1987 High-precision Radiocarbon Chronometry of Ancient Egypt, and Comparisons with Nubia, Palestine and Mesopotamia, *Antiquity* 61, 119–135.
- HELCK, W.  
1987 Was kann die Ägyptologie wirklich zum Problem der absoluten Chronologie in der Bronzezeit beitragen? Chronologische Annäherungswerte in der 18. Dynastie, 18–26, in: P. ÅSTRÖM (ed.), *High, Middle or Low? Acts of an International Colloquium on Absolute Chronology held at the University of Gothenburg 20<sup>th</sup>–22<sup>nd</sup> August 1987*, SIMA-Pb 56, Gothenburg.
- HORNUNG, E.  
1987 Lang oder kurz? – das Mittlere und Neue Reich Ägyptens als Prüfstein, 27–36, in: P. ÅSTRÖM (ed.),

- High, Middle or Low? Acts of an International Colloquium on Absolute Chronology held at the University of Gothenburg 20<sup>th</sup>–22<sup>nd</sup> August 1987*, SIMA-Pb 56, Gothenburg.
- HORNUNG, E., KRAUSS, R. & WARBURTON, D.A.  
2006 *Ancient Egyptian Chronology*, Leiden.
- KEMP, B.  
1978 The Harim-Palace at Medinet el-Ghurab, ZÄS 105, 122–133.
- KEMP, B.J. & MERRILLEES, R.S.  
1980 *Minoan Pottery in Second Millennium Egypt*, Mainz.
- KITCHEN, K.A.  
1987 The Basics of Egyptian Chronology in Relation to the Bronze Age, 37–55, in: P. ÅSTRÖM (ed.), *High, Middle or Low? Acts of an International Colloquium on Absolute Chronology held at the University of Gothenburg 20<sup>th</sup>–22<sup>nd</sup> August 1987*, SIMA-Pb 56, Gothenburg.
- 2000 The Historical Chronology of Ancient Egypt, a Current Assessment, 39–52, in: M. BIETAK (ed.), *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium B.C. Proceedings of an International Symposium at Schloß Haindorf, 15<sup>th</sup>–17<sup>th</sup> of November 1996 and at the Austrian Academy, Vienna, 11<sup>th</sup>–12<sup>th</sup> of May 1998*, CChEM 1, Vienna.
- 2002 Ancient Egyptian Chronology for Aegeanists, *MAA* 2, 5–12.
- 2007 Egyptian and Related Chronologies – Look, no Sciences, no Pots!, 163–171, in: M. BIETAK & E. CZERNY (eds.), *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium BC III. Proceedings of the SCIEM 2000 – 2<sup>nd</sup> Euro-Conference, Vienna, 28<sup>th</sup> of May–1<sup>st</sup> of June 2003*, CChEM 9, Vienna.
- MANNING, S.W., BRONK RAMSEY, C., KUTSCHERA, W., HIGHAM, T., KROMER, B., STEIER, P. & WILD, E.M.  
2006 Chronology for the Aegean Late Bronze Age 1700–1400 BC, *Science* 312, 565–569.
- MERRILLEES, R.S.  
1968 *The Cypriote Bronze Age Pottery Found in Egypt*, SIMA 18, Lund.
- MÜLLER, V.  
2006 Wie gut fixiert ist die Chronologie des Neuen Reiches wirklich? *Ä&L* 16, 203–230.
- NAGEL, G.  
1938 *La Céramique du Nouvel Empire a Deir el Medineh*, Cairo.
- NIWINSKI, A.  
1984 Sarg NR–SpZt, *LÄ* 5, 434–468.
- PEET, T.E. & WOOLLEY, C.L.,  
1923 *The City of Akhenaten I*, London.
- PETRIE, W.M.F.  
1890 *Kahun, Gurob and Hawara*, London.  
1891 *Illahun, Kahun and Gurob*, London.
- PETRIE, W.M.F. & BRUNTON, G.  
1924 *Sedment I–II*, BSAE and Egyptian Research Account, Twenty-Seventh Year, 1921, London.
- REIMER, P.J., BAILLIE, M.G.L., BARD, E., BAYLISS, A., BECK, J.W., BERTRAND, C.J.H., BLACKWELL, P.G., BUCK, C.E., BURR, G.S., CUTLER, K.B., DAMON, P.E., EDWARDS, R.L., FAIRBANKS, R.G., FRIEDRICH, M., GUILDERTON, T.P., HOGG, A.G., HUGHEN, K.A., KROMER, B., MCCORMAC, G., MANNING, S., BRONK RAMSEY, C., REIMER, R.W., REMMELE, S., SOUTHON, J.R., STUIVER, M., TALAMO, S., TAYLOR, F.W., VAN DER PFLICHT, J. & WEYHENMEYER, C.E.  
2004 IntCal04 Terrestrial Radiocarbon Age Calibration, 0–26 cal kyr BP, *Radiocarbon* 46, 1029–1058.
- SEILER, A.  
2005 *Tradition & Wandel. Die Keramik als Spiegel der Kulturentwicklung Thebens in der Zweiten Zwischenzeit*, DAIK Sonderschrift 32, Mainz.
- SPARKS, R.T.  
2007 *Stone Vessels in the Levant*, PEF Annual 8, Leeds.
- STUBBINGS, F.H.  
1951 *Mycenaean Pottery from the Levant*, Cambridge.
- SWITSUR, V.R.  
1984 Radiocarbon Date Calibration Using Historically Dated Specimens from Egypt and New Radiocarbon Determinations for El-Amarna, 178–188, in: B. KEMP (ed.), *Amarna Reports I*, Cambridge.
- TAYLOR, J.H.  
1989 *Egyptian Coffins*, Shire Publications 11, Aylesbury.
- WACE, A.J.B.  
1957 Mycenae 1939–1956, 1957. Part V. The Chronology of Late Helladic IIIB, *BSA* 52, 220–223.
- WARREN, P.M.  
2006 The Date of the Thera Eruption in Relation to Aegean-Egyptian Interconnections and the Egyptian Historical Chronology, 305–321, in: E. CZERNY, I. HEIN, H. HUNGER, D. MELMAN & A. SCHWAB (eds.), *Timelines. Studies in Honour of Manfred Bietak Volume II*, OLA 149, Leuven.
- WARREN, P.M. & HANKEY, V.  
1989 *Aegean Bronze Age Chronology*, Bristol.
- WIENER, M.H.  
2006 Egypt & Time, *Ä&L* 16, 285–299.  
2007 Times Change: The Current State of the Debate in Old World Chronology, 25–47, in: M. BIETAK & E. CZERNY (eds.), *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium BC III. Proceedings of the SCIEM 2000 – 2<sup>nd</sup> Euro-Conference, Vienna, 28<sup>th</sup> of May–1<sup>st</sup> of June 2003*, CChEM 9, Vienna.

