Chapter 10 Ostrich Eggshells

In Egypt

Few studies have been made of the ostrich in ancient Egypt until the recent work of Darby, Ghaloungui and Grivetti (1977:I:315–317), Behrens,[695] Houlihan (1986:1–5) and, most recently, Snape (forthcoming), although mention often is found elsewhere.[696]

Ostriches inhabit the southern desert areas of Egypt, the Sudan and savannah areas across central Africa south of the Sahara desert, and parts of South Africa. They also inhabited the Syrian steppe area, Mesopotamia to the Antioch plain[697] and, until the Second World War, also were found in the Arabian peninsula.[698] The bird was hunted from earliest times by both Egyptians and Nubians, an occupation commemorated on rock drawings along the Nile cliffs and in the Upper Egyptian/Lower Nubian desert dating to Badarian (Naqada I) times and on a surprising number of reliefs and paintings of the Dynastic period, especially on Dynasty XI and later tomb walls.[699] Perhaps the most famous depiction is on the ostrich-feather fan of Tutankhamun, showing the pharaoh hunting the birds for the feathers that decorate his fan.[700] Ostriches were most valued for their tail and wing feathers and their eggs, the feathers for decoration (especially on headdresses) and for fans, and the eggs for food and the shell.[701] Scenes of 'tribute-bearers,' especially from Nubia but also Libya, Syria and Punt, indicate the scale of their popularity in Egypt. These are found on tomb and temple walls, with ostrich eggs and feathers amongst their goods presented. Recent excavations at Mersa Matruh[702] and Zawiyet Umm el Rakham, both on the Libyan coast of Egypt, add archaeological evidence for their exportation and use in New Kingdom Egypt.

Eggs can be up to 17 cm. in length and 13 cm. in diameter, with a shell thickness of 3.5 mm., and weigh as much as 1.5 kg. Eggs in general were employed in Egypt both for food and as a medicinal ingredient,[703] and presumably this included the ostrich egg, difficult to obtain and thus more expensive and exotic. The term *swḫt nt niw* ('ostrich egg') is known as a medicinal ingredient,[704] and the shell may have been ground up into powder for this purpose. It also has been suggested that albumin (egg-white) was used as a binding medium for paint, although it has not yet been identified in recent analyses.[705] The eggs themselves would have to be eaten within days of collection; for this reason they could not travel very far, especially through the desert where they would be found. Illustrations show corralled desert animals for noblemen's 'hunting preserves' and even a hint of domestication of the bird during the New Kingdom; possibly eggs also were collected for eating through these 'farms.' Ostrich meat is edible, and also may have been consumed as a delicacy.

Ostrich eggshells have been recovered from Egyptian graves of the Naqada I–III (Badarian to Gerzean) periods and Nubian graves of similar and later date, although evidently they were not regarded as a food suitable for the deceased. A few were decorated, and occasionally clay 'eggs' served as substitutes.[706] One at

---

[695] *LÄ* VI.1:72–82 ('Strauß,' 'Straußenei,' 'Straußenfeder)'.

[696] The specifically-named studies were heavily consulted for the present chapter. Apparently the only early study was that of Laufer 1926:16–20, in a volume actually concentrating on Mesopotamian material; see now Moorey 1994:127–128 for this region. An earlier and condensed version of the present chapter, concentrating on the Egyptian side, is Phillips 2000). I thank Steven Snape for discussing the subject with me, and clarifying or confirming several points in light of his recent research.

[697] Caubet 1983:193.

[698] Fossil remains also have been found in southern Russia, Persia, Greece, northern India and Mongolia, but these were extinct prior to the appearance of man.

[699] E.g., Newberry 1893:pl. IV; Davies 1943:pl. XLVI.

[700] See Houlihan 1986:1–2, fig. 1.

[701] Serpico and White 2000:408, citing Houlihan 1986, suggest the ostrich may have been exploited on occasion for its fat, and Ikram 2000:663 notes that ostrich meat *can* be salt-dried for still-edible later consumption, although no evidence for this practice actually is cited for ancient Egypt.

[702] White 1986:79; Conwell 1987:31; White 1999:933–934; 2002:60–64. White 2002:1–45 lists Mycenaean, Cypriote, Egyptian and Canaanite, but not native Libyan and apparently no Minoan, ceramics, *contra* earlier preliminary reports. The Zawiyet Umm el Rakham excavations have recovered considerable Egyptian pottery, in addition to the others mentioned.

[703] Caminos in *LÄ* I.8:1186 ('Ei'); Darby, Ghaloungui and Grivetti 1977:I:315, 317, 330–331.

[704] See Behrens in *LÄ* VI.1:75, 76 n. 3.

[705] Lucas and Harris 1962:1–2; see also Newman and Halpine 2001:23, 25 on the general absence of egg white in recent analyses for problematic or post-Dynastic cases.

[706] Kantor 1948.

Naqada apparently was intended to substitute for the missing head of the deceased.[707] The majority of goods made from ostrich eggshell are small disc beads, shaped and drilled and often strung together into simple necklaces.[708] Other jewellery included larger perforated discs, possibly for ear, forehead or clothing ornaments, and slightly curving flat pendants in a variety of shapes, perforated at one end and probably to be considered amuletic in nature.[709] Eggshell jewellery is common from the Badarian (Naqada I) period through into Dynasty XXII, including the Dynasty XVIII–early XIX period.[710]

Few other objects were made from ostrich eggshell. There is no evidence for its use as an inlay material in Egypt. Extremely few vessels are known, but they are a variety of types chiefly dating to Dynasty XVIII.[711] The profile of the added neck/rim of a flask from Abydos parallels that of the Type A ('flask') alabastron, and both this feature and its anhydrite material suggest a date of sometime in Dynasty XII into the Second Intermediate Period (despite its Dynasty XVIII context).[712] At least six vessels are reported from tombs at Dab'a from Hyksos period contexts.[713] An elaborate Dynasty VI perfume vessel recently also was found in the Dakhleh Oasis,[714] indicating that ostrich eggshell vessels had been produced before the late Middle Kingdom despite their rarity in the archaeological record. At least two Early Bronze sites in the Levant have produced eggshells converted into vessels, and others are known from Mesopotamia; later finds also are not uncommon.[715] Ostrich eggshell beads are rare in Mesopotamia and inlays apparently unknown.[716]

Eggs were both exported from, and worked outside, Egypt (presumably with their contents already removed) and it is noteworthy that, as with ivory, the majority of research on ostrich eggshell vessels has been conducted outside Egypt. A variety of eggshell vessel types also have been recovered in Mesopotamia and Syro-Palestine, painted shells there and in Cyprus and Bahrain, and unpainted shells and fragments there and elsewhere, including Nubia.[717] The presence of both ostriches and artefacts made of their shells in the Bronze Age Levant, Arabian peninsula and Mesopotamia[718] precludes any certainty that the Aegean eggshells originated in Egypt, but Egypt certainly is one possible source for the material found in the Aegean. The earliest Minoan examples especially are more likely to have arrived from Egypt, since they are found at sites with early Egyptian imports in other materials and very few if any from the Levant, but the alternative sources cannot be excluded. Those recovered at Mersa Matruh (and Zawiyet Umm el Rakham in Dynasty XIX) strongly suggest that an Egyptian origin is possible even in the Late Bronze Age, although their presence on the Uluburun wreck and on Cyprus also points to a probable Levantine source.

On Crete

Ostriches are not native to Crete, and any products made from their eggshells must have been imported, most probably from Egypt.[719] Vermeule once suggested that "for all we know, someone kept a pair of pet ostriches at Zakro and speculated on plain and fancy eggs,"[720] as the quantity of finds from the Aegean is quite small. However, their contexts range from EM IIB/III through to (on the Mainland) LH IIIC, not a single limited time period within the

---

[707] Petrie and Spurrell 1896:28.

[708] For their manufacture, see Lucas and Harris 1962:44; Gratien 1998.

[709] Nordström 1972:124–126, pls. 1–5; Needler 1984:306–7, fig. 8:127, pl. 52:233:lower.

[710] Snape forthcoming, *contra* Lucas and Harris 1962:38, 44. See, for example, Kemp 1980:8.

[711] Hayes 1953–1959:II:23 (container with a hole cut at one end); Thomas 1981:I:87 #755 (cup with drilled hole, probably for wooden handle); Säve-Söderbergh and Troy 1991:170 (fragments thought to be a vessel); see also Helck in *LÄ* VI.1:77 ('Straußeneiergefäß').

[712] See Chapter 4, Appendix A. Compare the neck/rim profile with those of travertine examples on Crete **{91; 146}**. For the Abydos vessel, see Evans *PM* II.1:222, fig. 127 ('globular alabastron' with fitted anhydrite neck/rim attachment, from Abydos tomb 1113 A'09). Evans published it as Dynasty XI–XII in date, presumably on the advice of contemporary Egyptologists, but recent analysis of the tomb and its contents by Snape (forthcoming) has re-dated the context to Dynasty XVIII. The vessel itself must be earlier in date, although probably not as early as Evans believed, by comparison of both neck/rim material and general profile. It does not relate to the Dynasty XVIII handless flask profile, and anhydrite was employed as a material in the Middle Kingdom–SIP but not in Dynasty XVIII. See also n. 893, below.

[713] Van den Brink 1982:51–52; 83–89.

[714] Sheikholeslami 2000:33, 58 #13, 126 #H.

[715] Caubet 1983; Reese 1985:374–375; Moorey 1994:128.

[716] See Moorey 1994:127–128, who makes no mention of the latter.

[717] Reese 1985; add Vermeule and Wolska 1990:253–254, 370–371. See now also Moorey 1994:127–128.

[718] See Caubet 1983; Reese 1985:374–376.

[719] See Distribution Maps 23–24; also Conwell 1987.

[720] Vermeule 1975:20.

Bronze Age, and her joking suggestion cannot be considered more than that.

Pre-Palatial

Fragments of ostrich eggshells have been recovered from an EM IIB or (more likely) EM III level below Room Δ32 at Palaikastro **{425}**, and the chiefly MM IA Vat Room Deposit at Knossos palace **{153–155}** which was sealed in MM IB (early) and thus actually dates to the early Proto-Palatial period. Both contexts are of a cultic nature, although evidence for the Palaikastro context remains circumstantial due to its limited and early excavation.

Despite comparison with later examples (see below), these eggshells could never have been converted into rhyta, as the form generally did not appear until MM II on Crete.[721] This does not preclude the possibility they were converted into another vessel type, but the fragmentary remains provide no real evidence either way.[722] It is possible that these putative vessel forms were Minoan-made, although equally possible they were imported Egyptian or perhaps Levantine vessels – if, of course, they *were* vessels.

Some pieces were employed for another purpose. The inlay pieces **{153?; 154?; 155}** from the Vat Room Deposit provide the only direct evidence for actual Minoan use at this date. No eggshell inlays are reported from Egypt, whilst there is no evidence for the use of eggshell beads on Crete.[723]

Proto-Palatial

The only Proto-Palatial context of ostrich eggshell is the material from the Vat Room deposit at Knossos, dated to MM IB (early) as it contained MM IB vessels but was affected by the MM IB fire. Although actually in a context belonging to the beginning of the Proto-Palatial period, it is discussed with the Pre-Palatial material above. There appears to be a clear division between the 'early' and 'later' material on Crete, with a hiatus in the Proto-Palatial period, on the basis of extant finds.

Neo-Palatial

Fragments of ostrich eggshells have been recovered from MM IIIA 'domestic rubbish' covering a late MM II–MM IIIA tomb on the Upper Gypsades hill at Knossos **{277}**, from the 'Hall of Ceremonies' at Kato Zakro palace **{108}**, destroyed LM IB, and in Warren's 'North House' at Knossos **{216}** in an LM IB (with some LM II) context; fragments also apparently were found on the Kephala ridge at Knossos **{261}**, presumably but not necessarily from a tomb of unknown date.[724] Although all Minoan finds are limited to fragments (sometimes joining), substantially complete eggshells have been recovered, at Mycenae and Dendra on the Mainland, Phylakopi on Kea and Akrotiri on Thera,[725] converted to rhyta and embellished with added attachments in faience and precious metals. This suggests that the Kato Zakro examples at least, apparently two in number, also may have been converted into rhyta, as apparently was the Knossos example **{261}** and *may* have been the small fragments also from Knossos **{216}** and **{277}**. Extant comparative evidence suggests only conversion to the rhyton form at this time. There is, however, nothing against conversion of these shells into a vessel type other than the rhyton, or to another artefact type.

---

[721] Koehl 2000:94 lists earlier rhyta in zoomorphic form, but has only one vessel-shaped rhyton earlier than MM II, an MM I piriform shape from Khamaizi. Earlier, Koehl 1981:187 and then Betancourt 1985:100 had noted that rhyta did not appear as a vessel form until MM IIB. This would negate Sakellarakis's (1990:289) suggestion that the eggshells in these early contexts may have been converted into rhyta.

[722] See, however, comments to **{153}**.

[723] Beads are rare in Mesopotamia and inlays apparently unknown; see Moorey 1994:127–128, who makes no mention of the latter.

[724] It is included here as the only nearby datable find reported is LM IA pottery, but it is emphasised that **{261}** is entirely without context.

[725] See Sakellarakis 1990. The Thera rhyta are from an LM IA possible shrine context, the four Mycenae rhyta from shaft graves IV (LH IA–B) and V (LH IB), and thus all not later than LM IA in relative terms. The Dendra rhyton is from an LH IIIB tholos tomb, and the Phylakopi rhyton from a terminal LH IIIC shrine context. Eggshell fragments, having no evidence of conversion to rhyta as preserved, were recovered at Ayios Stephanos (not earlier than LH II/IIIA), Gla (LH IIIB1–2) and the Acropolis at Mycenae (LH III?; LH IIIB) on the Mainland, and Ialysos on Rhodes (LH IIIA2), in apparent domestic, funerary and other contexts. At least two unconverted ostrich eggshells, fragments of at least two others and 'many' pierced disc beads also have been recovered in the Uluburun shipwreck (= LH IIIA2). Eggs were emptied before transportation, by pricking holes at top and bottom and blowing out the contents, as indicated by those recovered in the Uluburun wreck, so they would have arrived already 'holed' at both ends which may have suggested their potential conversion to rhyta. All dates quoted are context dates and therefore *termini ante quem*. See Cline 1994:237–239 #939–956 and, for Uluburun, Bass 1997:165; White 2002:70 n. 86.

The only Minoan context with substantial eggshell remains **{108}** is of a cultic nature. Foster (1979:134–137) is unsure if the conversion from egg to rhyton was effected on Crete or at Mycenae (where the majority of such rhyta were recovered), or both. The presumed conversion of the Kato Zakro finds **{108}** (not considered by Foster) and apparent conversion of **{261}** at Knossos would strengthen her argument for a Minoan rather than Mycenaean conversion, and export from Crete based on the Minoan affinities of the faience dolphin appliqués originally attached to one of the Mycenae rhyta. Nonetheless, the near-total lack of converted eggshell rhyta on Crete itself leaves this an open question for the present. She notes also, however, "the importation of one finished rhyton does not necessarily imply the importing of others."[726] A detailed analysis of the manufacture of rhyta by conversion of ostrich eggs was undertaken by Sakellarakis (1990) and need not be repeated here. In this respect, it is a striking parallel to the Minoan conversion of imported Egyptian stone vessels into Minoan types, subsequently exported to the Mainland.[727]

Based on the single ostrich eggshell vessel from Abydos with separately attached anhydrite neck and rim dated (in his day) to Dynasty XI–early XII,[728] and the recovery of a clay globular rhyton painted in direct imitation of an ostrich eggshell with metal attachments **{236}**, Evans strongly advocated the theory that the ostrich eggshell was the immediate precursor of certain forms of rhyta.[729] The visual evidence is striking, but Evans also should have taken into account the chronological disparity of over a century between early Dynasty XII (the putative latest date of his Egyptian example) and MM IIB (the earliest globular rhyta on Crete, including those he employed in his argument). The Egyptian date range for the Abydos vessel quoted by Evans generally is contemporary with (or slightly earlier than) the early MM IB Vat Room' fragments **{153–155}**, not the MM III(A?) date of the clay rhyton **{236}** with which he compared it. Although its tomb context dates to Dynasty XVIII, the vessel itself, or at least its anhydrite rim, should date to sometime in Dynasty XII into the Second Intermediate Period.[730] Thus, if the Abydos eggshell had not been attached to an old stone vessel rim/neck in Dynasty XVIII, it should be earlier than, or relatively contemporary with, the Knossos clay rhyton **{236}**.

The virtual dearth of known eggshell vessels in Egypt during the Middle Kingdom, as well as their evident dearth on Crete in Proto-Palatial contexts, argues against an association. Eggshell fragments are like potsherds: whilst they break easily, the fragments are virtually impossible to destroy without trace, and they are sufficiently unusual in excavation to be noticed. Had fragments been found (especially at Knossos), they would have been retained even if their material remained unrecognised, as Evans himself failed to recognise the eggshell fragments he did find and publish from the Vat Room **{153–155}**. The lack of imported eggshell material on Proto-Palatial Crete is difficult to associate with the introduction and apparent continued popularity of an entirely new vessel type having an entirely new profile, the 'ostrich-egg rhyton.' This globular form of Aegean rhyton is introduced in MM IIB and continues through LM IA on Crete and is limited to LH I–IIA (= LM IA–B) on the Mainland.[731] This is contemporary with the context dates of ostrich eggshell rhyta found at Mycenae and Thera, and a questionable clay imitation from the LH IIA Kalkani Tomb 518 at Mycenae.

It is possible, nonetheless, that this particular clay rhyton **{236}** at Knossos, in a profile already known on Crete, was painted in imitation of an ostrich eggshell *because* its shape was similar to the vessel. In this case, ostrich eggshells would have been amongst the goods imported at this time, for the specific pur-

---

[726] Foster 1979:137.

[727] See Chapter 4, Appendix B. The use of these rhyta follows a similar pattern as that noted for the converted stone vessels: generally found in religious and domestic contexts in Neo-Palatial, and funerary contexts on the contemporary Mainland and in LM III. Persson 1931:54 suggested the Dendra rhyton was imported from Crete, on the basis that an imported Minoan steatite lamp was found nearby. See also Koehl 1981:187.

[728] See n. 712, above.

[729] See Evans PM I:594, fig. 436; II.1:223–226, fig. 129.

[730] Snape forthcoming. B.G. Aston 1994:51–53; notes that some stone vessels of this type were produced with a separate attachable neck piece; *Ibid*.:141 #142.

[731] Koehl 1981:180 fig. 1. Individual vessels have not been included in the present catalogue, for the same reason as Minoan clay alabastra (see Chapter 4, Appendix A). Only the single direct imitation **{236}** is included, as it also imitates the material. The definitive study of Aegean rhyta is now Koehl 2006, unfortunately not available to me. For the Tomb 518 clay rhyton at Mycenae, see Ministry 1988: 266–267 #301; it is now on display at the Mycenae Museum, MM 1684. I am not convinced it imitates an ostrich-eggshell.

pose of creating a rhyton of recognised form in a more exotic material.[732] The fragments from Upper Gypsades **{277}** indicate that ostrich eggshells at least were known at Knossos when this rhyton was made. The known converted eggshell rhyta on Thera and at Mycenae are not earlier than MH IIIB, and likely limited to LH I, in date. Perhaps we just have not yet found an ostrich eggshell actually converted into a rhyton in MM III.

Final Palatial and later

The few LM II pottery sherds from the 'North House' context at Knossos provide the latest possible deposition date of the eggshell sherds **{216}** found with them. However, their small size would suggest they probably were residual from LM I together with the majority of the associated ceramics, and they are discussed above in Neo-Palatial.

Some ostrich eggshell fragments were recovered in a Minoan tholos tomb reused in the Proto-Geometric B-Early Orientalising period.[733] The tomb itself would not have been cut for use before LM II, suggesting the shell could not have been deposited before that date, if it was not deposited as part of the reuse. This is not the only eggshell recovered on Crete in a Post-Minoan context,[734] but it *may* have been a survival from the original Minoan use of the tomb. This seems to be implied by the excavator's suggestion the fragments may have been from a rhyton. However, no other Bronze Age material was recorded in the tomb, and so these fragments are not included in the present catalogue.

Vandenabeele and Olivier[735] have suggested that the single known instance of a particular Linear B ideogramme (#217), found on tablet KN K 424 at Knossos in the 'Room of the Niche,'[736] represents the ostrich-egg rhyton and they cite the several converted rhyta recovered at Thera, Dendra, Mycenae and elsewhere. However, its sloping baggy profile is at variance with the definitively oval profile of the egg itself, and it seems more logical to consider this as representing the 'tall alabastron' from which by this time has a sloping baggy body profile. These are well known at Knossos, Mycenae and elsewhere, both in travertine as imported vessels **{249–251; 258}** and (on Crete only) in clay.[737] The ideogramme has a ring around its neck, which suggested to Vandenabeele and Olivier that it may have been a composite vessel made in the technique familiar from the rock crystal rhyton from Kato Zakro,[738] and so would have been in some precious material. Alternatively, it may represent a clay alabastron, which often exhibits a neck ridge.[739] These vessels, however, are not of a precious material, but the very rarity of the ideogramme suggests an unlikely original for its presence. The Knossos tablets generally are dated between early LH IIIA2 and IIIB,[740] a period when no ostrich eggshells are found and the 'tall alabastron' is distinctly on the wane.

Thus, the ostrich eggshells have no cross-cultural chronological value, except as evidence for the importation of luxury commodities mainly in the Neo-Palatial period.

That they appear at the same time and in the same relative proportions as other imported objects (especially stone vessels), strongly suggests they are a reasonable barometer of importation: some scatterings in the Pre-Palatial/very early Proto-Palatial with some evidence for probable embellishment, then a proportionately large quantity in Neo-Palatial that trickles off to probably residual instances in Final Palatial contexts.

---

[732] In much the same way as is suggested for the shallow carinated bowls in MM II; see Chapter 4, Appendix A.

[733] Hutchinson and Boardman 1954:228 #80, who suggest they may have been from a rhyton. See also Skon-Jedele 1991:III:1873 #2936. It is *just* possible that these are fragments **{261}** but, if so, the published reports of their original find spot are entirely incorrect.

[734] E.g., the complete ostrich eggshell recovered at Ampelokepoi near Knossos in a Late Geometric/Proto-Archaic(?) context, a quite large example at 17 cm in length. It was 'holed' only at one end, with several smaller holes for attachment of the (now missing) neck and rim, and may have been a perfumed oil container. See Stampolides, Karetsou and Kanta 1998:148 #44:249; Karetsou *et al.* 2000:358–359 #393.

[735] Vandenabeele and Olivier 1979:241–245 Type D.1.a, fig. 165, pl. CXXV:1; see also fig. 2:217.

[736] Evans 1952:39; Chadwick *et al.* 1986:159 #K 434.

[737] E.g., Betancourt 1985:pls. 23:G, 38:C–D, 29:B. On the Mainland, see Furumark 1941:40. Nonetheless, some imported examples are known; see Warren 1969:114 Type I.

[738] Platon 1971:139:fig. top right.

[739] See discussion in Chapter 4, Appendix A.

[740] The possible exceptions are those recovered in the 'Room of the Chariot Tablets' that *may* date to LM II; see Shelmerdine 1992:570. *If* they do, the 'Chariot Tablets' are the only tablets assignable to a period consistent with actual eggshell fragments at Knossos and on Crete. KN K 434 is not included amongst the 'Chariot Tablets' group.