

# Castration, cult and agriculture

## Perspectives on Greek animal sacrifice

### Abstract

The castration of most male animals seems to have been the rule in ancient Greece when rearing cattle, sheep, goats, and pigs; only very few adult males are needed for breeding purposes and flocks of bulls, rams, billy-goats and boars are difficult to keep, since they are too aggressive. Castrated males yield more and fattier meat, and, in the case of sheep, more wool. Still, sacred laws and sacrificial calendars stipulate the sacrifice of uncastrated victims, and vase-paintings frequently represent bulls, rams and billy-goats in ritual contexts. This paper will discuss the role of uncastrated male animals in Greek cult in the Archaic, Classical and Hellenistic periods, both from a religious and an agricultural perspective. Of particular interest are the relations between the practical, economic reality and the theological perception of sacrifice. These issues will be explored using epigraphical, literary, iconographical and zooarchaeological evidence.\*

*Keywords:* Cult, agriculture, vase-painting, castration, sacrifice, bull, ram, billy-goat, boar, eunuch

### Introduction

A basic given fact when raising animals is that one needs much fewer males than females, and therefore most males are either killed before becoming mature, or castrated.<sup>1</sup> Uncastrated

males cannot be kept together in herds, since they are too aggressive and competitive, and if grazed with the females, uncontrolled breeding will occur.<sup>2</sup> However, animals may also be castrated for other reasons. Although an uncastrated male has a bigger muscle mass than a castrated male, castration causes the production of fat to increase substantially, which leads to castrated males having fattier meat, a condition clearly desired in many cultures, antiquity included.<sup>3</sup> This goes for all species; cattle, sheep, goats or pigs, as well as humans, and eunuchs are in fact often described as being obese.<sup>4</sup> Another effect of castration can be noted in relation to sheep: wethers produce more wool than rams or ewes.<sup>5</sup>

For pigs, the removal of the testicles hinders the development of boar taint, an unpleasant smell and taste in pork that occurs when the meat is being heated; interestingly enough, this is most disagreeable to women.<sup>6</sup> Boar taint is caused by the pheromone androstenone, which is produced by the boar's testicles, and skatole, a by-product of the pig's digestive tracts, which cannot be broken down by uncastrated pigs. Uncastrated mature male pigs are rarely eaten in modern societies due to the occurrence of boar taint, and most male piglets are therefore castrated or slaughtered at a young age, apart from in England, Ireland, Australia and Spain.<sup>7</sup>

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\* This article was directly inspired by a question once posed to me by the late Berit Wells, "Did the Greeks eat uncastrated animals?"—a matter I had never considered before. I dedicate this article to her memory, as both a stimulating and demanding teacher and colleague. I would also like to thank Lotta Rydhmer, professor in animal breeding at the Swedish University of Agricultural Sciences, Uppsala, for kindly sharing her expertise on modern castration, as well as Susanne Berndt-Ersöz, Lovisa Strand and Kerstin Silfwerbrand for fruitful discussions, and Robert Parker for sending me his unpublished manuscript discussing a Hellenistic funerary foundation from Lydia.

<sup>1</sup> Isager & Skydsgaard 1992, 89–91; Taylor 2002, 166–169; Dahl & Hjort 1976, 28–33 and 88–89.

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<sup>2</sup> Frandson, Lee Willke & Fails 2009, 408; Rydhmer *et al.* 2006; Lacroix 1915. Castrated wethers can be used as flock leaders, unlike rams, which do not obey the shepherd, see Tani 1989.

<sup>3</sup> Warriss 2010, 91–93; Brännäng 1966, 399–407; 1971, 5–11; Halstead 1996, 25–26. Fattier livestock is also often more compliant and easier to handle, see Pond 1998, 71. Modern meat production differs here because, today, lean meat is often desired.

<sup>4</sup> Taylor 2002, 44 and 174.

<sup>5</sup> On wethers being kept for wool production, see Killen 1993.

<sup>6</sup> Warriss 2010, 91–96; Zamaratskaia 2004; Xue & Dial 1997.

<sup>7</sup> Warriss 2010, 92.

Castrated animals are easier to control and produce meat of a better quality, and these were of course well-known facts of animal husbandry in the ancient world. Galen, for example, states:

“In our part of the world people cut out (ἐκτέμνειν) the testicles of young pigs and oxen, but not for the same purpose; rather, those of the pigs for the sake of eating (for the flesh of castrated pigs is also more tasty, more nutritious and better concocted), and those of oxen for their usefulness in farming (for bulls are difficult for them to manage). But they remove the testicles of goats and sheep for both reasons.”<sup>8</sup>

He further comments that meat of male goats is unwholesome and bitter, as is that of rams and bulls, and on the whole the meat of castrated animals is better.<sup>9</sup> Aristotle also speaks of castration as a part of flock management and for improving the quality of the animals, and so do other ancient authors.<sup>10</sup> As for the techniques used, the castration of young bulls and swine in antiquity usually seems to have been performed by opening or cutting away the lower part of the scrotum and then squeezing out the testicles and removing them.<sup>11</sup> Aristotle states that for bulls, the roots were then pushed as far up as possible into the body.<sup>12</sup> The testes of calves could be crushed, thus not causing any open wound.<sup>13</sup> The result of these procedures would be animals which had none or very little of the empty scrotum visible between the legs. The same or similar methods are still used today both for ruminants and pigs.<sup>14</sup>

<sup>8</sup> Gal. *De alimentorum facultatibus* III.6 (K675–676), transl. Powell 2003.

<sup>9</sup> Gal. *De alimentorum facultatibus* III.1 (K663), transl. Powell 2003. Martial 3.24 describes the castration of a goat at a sacrifice in order to improve the taste of the meat. If castration is to have any affect on the quality of the meat, it has to be done at least two weeks before the animal is killed (pers. comm. prof. Lotta Rydhmer). Also, the meat of billy-goats does usually not have a foul taste or smell unless the animals are rutting, and during that period they are, as a rule, never slaughtered.

<sup>10</sup> Arist. *HA* 632a; see also Xen. *Cyr.* 7.5.62–63, bulls become calmer if castrated, though still remain strong and suitable for work; Plut. *fig.* 106; Varro, *Rust.* 2.2.18 and 2.5.17; Georgoudi 1990, 281–282; van Straten 1987, 169–170.

<sup>11</sup> Arist. *HA* 632a; Columella, *Rust.* 6.26.2 and 7.11.1–2; Adams 1990. This technique limits the danger of haemorrhage.

<sup>12</sup> Arist. *HA* 632a.

<sup>13</sup> Columella, *Rust.* 6.26.1.

<sup>14</sup> See Lacroix 1915. Other techniques for ruminants include crushing the spermatid cords with a Burdizzo or placing a rubber ring above the testicles, which will make them fall off after two weeks. Both of these methods are to be used on young animals.

Modern scholars are unfortunately often a bit sloppy as to the terminology used when referring to ancient animals, including sacrificial victims, and any bovine tends to be called a bull, even if there is nothing to substantiate this specification.<sup>15</sup> Considering the scarcity of bulls in comparison to cows and oxen, we should really pay attention to whether an animal is fully male, female, or castrated. The animals depicted on the parapet of the Athena Nike bastion on the Athenian Acropolis can serve as a case in point. A seated Athena and winged Nikai setting up trophies and performing animal sacrifice are represented here. Three bovines were originally depicted, one on each side of the parapet. These animals have, out of habit, been labelled bulls, for example by Erika Simon, who builds her interpretation of the motif as a chthonian sacrifice to The- seus precisely on the identification of the animals as bulls.<sup>16</sup> A closer look at the three victims shows, however, that one on the west side is lost, the second animal, on the southern frieze, is male, but we cannot tell if it was a bull or an ox, and as for the third one, on the northern side, the artist has avoided revealing the sex of the victim—the drapery around Nike’s left knee hides the genitals.<sup>17</sup> Michael Jameson has demonstrated that the ritual shown must be a kind of *sphagia*—a sacrifice performed on the battlefield before the armies clashed, in order to divine the outcome of the struggle.<sup>18</sup> Though this ritual often seems to have made use of uncastrated victims, the specification of the sex of the animals was apparently of less importance in this particular case.

This article will explore the role of uncastrated animals in Greek cult in the Archaic, Classical and Hellenistic periods, both from a religious and an agricultural perspective: how often do we encounter the full males, where and why? The relations between the practical reality of raising animals and the religious ideas and beliefs connected to sacrifice are of particular interest. The focus of the discussion will be on the epigraphical and iconographical evidence and, to a lesser extent, the literary texts and zooarchaeological material.

<sup>15</sup> See the comments by Jameson 1994, 313–317 and Georgoudi 1990, 280–282, on the importance of carefully considering the victim’s sex in detail. On the problems of the opposite mistranslation, every *bous* being an ox, and running the risk of hiding the fact that many must have been females, see Chandezon 2003, 100n. 239.

<sup>16</sup> Simon 1988, 71; Simon 1997. Brouskari in her publication of the reliefs (1999, 82–92) designates them as *tauroi* as well.

<sup>17</sup> Jameson 1994, 313–317, figs. 18.5–6; see also Brouskari 1999, pls. 2–4, no. 972, and 61–62, nos. 7098 and 7099.

<sup>18</sup> Jameson 1994.

## Inscriptions

The importance of paying attention to what kind of animal we are actually encountering is obvious from the rich and varied Greek terminology, which is evidenced in particular in the sacred laws and sacrificial calendars.<sup>19</sup> Starting with the vocabulary for cattle, let us consider the generic term for cattle, βούς, which can be masculine or feminine. A *bous* can be specified as ἄρσῆν or ἄρρῆν, male, and these terms presumably refer to an ox rather than a bull because there is the term ταῦρος, which indisputably refers to a full male, though in Homer there is even a ταῦρος βοῦς.<sup>20</sup> A term like θήλυς, female, identifies the *bous* as a cow, so does δάμαλις, while a βοῦς κυοῦσα is a pregnant heifer.<sup>21</sup> Calves, μόσχοι, are occasionally mentioned.

The spectrum for sheep is just as wide, and their sex and various ages could be expressed with at least five different terms. A sheep *tout court* was an οἶς, a ram was κρῖος, while for lambs ἀμνός or ἀρήν was used.<sup>22</sup> Female lambs could be labelled ἀμνή—a term that perhaps also covered ewes, which otherwise can be specified as οἶς θήλεια. A similar pattern is found for the goats, where αἶξ is a goat in general. The billy-goat is a τράγος, while a kid is called ἔριφος, and there is also the term χίμαρος, which means a young male goat.<sup>23</sup> Occasionally οἶς and αἶξ occur at two different price levels within the same inscription, and this most likely corresponds to the bipartition of these species based on sex into females and castrated males, respectively.<sup>24</sup> The pigs are less diversified.<sup>25</sup> The most common term found in the epigraphical evidence is χοῖρος, and this refers to a piglet, no matter the sex. Mature swine are ὕς, and sometimes these animals are specified as being pregnant. The term for boar is κάπρος and could apparently refer to a wild boar as well.<sup>26</sup>

We can note that the uncastrated male animals have their own particular terms, *tauros*, *krios*, *tragos*, *chimaros* and *kapros*, while the females are usually identified only by the adjective *theleia*, “female” or by the fact that they are pregnant.<sup>27</sup> More puzzling is, therefore, the occasional specification of a ram, a *krios*, being sacrificed, as ἐνόρχης, “uncastrated”.<sup>28</sup> An uncastrated ram sounds like a tautology, but apparently the masculine quality of these victims was of prime importance. Possibly, these males were not only uncastrated but had also been used successfully for breeding. In that sense they could represent the equivalent of the pregnant victims occasionally listed in sacrificial calendars, be they ewes, heifers or sows.<sup>29</sup>

How often do we encounter uncastrated animals in inscriptions concerning religion? As a case study, we can take the four best preserved sacrificial calendars from Attica, dating from around 450 to 350 BC, from the demes of Thorikos, Marathon and Erchia, as well as the *genos* of the Salaminioi.<sup>30</sup> In these four documents, a total of 172 animals are mentioned, and if their spread as to species, ages and sex is considered, it is striking that there is not one single *tauros* to be found.<sup>31</sup> Admittedly these inscriptions reflect sacrifices on a deme or gentilicial level, and since cattle were the most expensive victims, such animals were rarely sacrificed outside state sacrifices.<sup>32</sup> Still, at Thorikos two bovines were among the sacrificial victims, and one *bous* was sacrificed by the *genos* of the Salaminioi, while the rich deme of Marathon was able to pay for seven cattle, one of which was a pregnant heifer.<sup>33</sup> There are four rams, *krioi*, among the victims, three in Marathon and one in Erchia, as well as at least one *tragos*, a billy-goat, and one *chimaros*, a young male goat.<sup>34</sup> On the other hand, among the 23 victims mentioned in the sacrificial calendar inscribed

<sup>19</sup> See Georgoudi 1988; Chantraine 1955; van Straten 1995, 176–186; Brulé & Touzé 2008.

<sup>20</sup> On the interpretation of *bous arren* as an ox, distinct from the non-castrated *tauros*, see Georgoudi 1990, 281. On the vocabulary, see also Ar. Byz. no. 149–162 (Slater 1986, 52–55). *Taurus bous*: Hom. *Il.* 17.389.

<sup>21</sup> The term *damalis* seems occasionally to have been used to designate a young female of another species, as in the regulations of the mysteries at Andania where it is used to refer to a pig, see *Andania* 31 (*IG V*:1, 1390), 31, lines 34 and 35, line 69.

<sup>22</sup> Chantraine 1955; Ar. Byz. no. 105–117 (Slater 1986, 42–44); van Straten 1995, 176, 181.

<sup>23</sup> Ar. Byz. no. 99–104 (Slater 1986, 39–42); van Straten 1995, 176 and 181.

<sup>24</sup> van Straten 1995, 181–86, concerning the sacrificial calendar from the Attic deme Erchia. As the more expensive sheep were usually destined for a male deity they probably represent wethers, which also yield more wool, as well as meat of a superior, fattier quality, facts which may account for the higher price.

<sup>25</sup> For the pig terminology, see Ar. Byz. no. 163–171 (Slater 1986, 56–58); Georgoudi 1988, 78–79; Perpillou 2004, 10–14; Rougemont 2006, 118–125.

<sup>26</sup> *NGSL*, no. 5, commentary p. 188 and n. 39.

<sup>27</sup> It has been suggested that the Linear B ideogram \*170 marks young bulls selected for sacrifice or tribute, see Landenius Enegren 2004, 14–15. Sometimes the inscriptions call for the sacrifice of an uncastrated victim, without naming the species, as is the case in the Molpoi inscription from Miletos where a sacrifice is to consist of an uncastrated victim, a female one, and a third which is unspecified, see *LSA* 50, lines 18–20; Herda 2006, 218–220.

<sup>28</sup> *LS* 96, lines 6 and 9, Mykonos, c. 200 BC; *LSS* 98, line 3, Camiros, 2nd century BC; *SEG* 41, 1991, no. 744, Eleutherna, c. 150–100 BC; Georgoudi 1990, 280–281.

<sup>29</sup> On pregnant victims, see Bremmer 2005.

<sup>30</sup> Thorikos: *NGSL* 1. Marathon: *LS* 20 B; Lambert 2000. Erchia: *LS* 18; Daux 1963. Salaminioi: *LSS* 19; Ferguson 1938; Lambert 1997.

<sup>31</sup> For an overview of the animals mentioned, see van Straten 1995, 176; Ekroth 2002, 168, table 30.

<sup>32</sup> On the economic, as well as the social and political level of these texts, see Dow 1968; Mikalson 1977; Parker 1987; Jameson 1988; Rosivach 1994; van Straten 1995, 170–181; Ekroth 2002, 150–169.

<sup>33</sup> Thorikos: *NGSL* 1, lines 28 and 55; Salaminioi: *LSS* 19, line 85; Marathon: *LS* 20 B, lines 6, 8, 9 (pregnant), 20, 21, 35 and 43.

<sup>34</sup> *Krioi*: *LS* 20 B, lines 27, 44 and 51 (Marathon); *LS* 18, col. V, line 52 (Erchia). *Tragoi*: *LS* 20 B, line 18 (Marathon); cf. *NGSL* 1, line 45 (Thorikos). *Chimaros*: *NGSL* 1, line 20 (Thorikos).

by the *genos* of the Salaminioi, there is not one single animal marked as male, in the sense of being uncastrated. In all, the uncastrated victims are not many and make up only around 4% of all animals listed for sacrifice in these four documents.<sup>35</sup>

The epigraphical evidence regarding religious practices at large confirms the impression that uncastrated animals were unusual sacrificial victims. In Sokolowski's three volumes of *Lois sacrées* from the Greek world and Lupu's *Greek sacred law*, 429 inscriptions are included, some of which are very brief, while others span more than 100 lines. Although far from all of these include mentions of sacrificial victims, the uncastrated animals are on the whole very few: five bulls, around 30 rams, ten billy-goats or young male goats and four boars.<sup>36</sup> Occasionally, an inscription contains a concentration of mentions of uncastrated animals, such as a fragmentary calendar from Miletupolis in the Kyzikos region. In this, three of the 14 victims are bulls, and all are to be sacrificed within the same month, a singular occurrence.<sup>37</sup> The particular and unusual character of the uncastrated males is also reflected in their price, as they are generally more expensive, which also must have contributed to their infrequency as sacrificial victims. In the 4th-century Athenian inscriptions, the wethers and ewes cost between ten and 15 drachmas, while the rams cost 17 drachmas.<sup>38</sup> The prices for castrated goats and nanny-goats are ten to twelve drachmas, while the billy-goats are 15 drachmas.<sup>39</sup>

Uncastrated males clearly were uncommon as sacrificial victims, which is not surprising and fits well with the low number of such animals among the real herds.<sup>40</sup> The epigraphical evidence dealing with the elevation of animals, pasture rights and trade in flocks in the Classical and Hellenistic pe-

riods has been studied in a most interesting volume by Christophe Chandezon.<sup>41</sup> In these inscriptions, there is no reference to uncastrated males. Herds of cattle and sheep and goats are mentioned, frequently covered by the terms *boskemata* or *probata*, as well as a few swine. The sex of the animals is rarely specified, but in those cases where it is, we encounter cows or ewes—this reflects the importance of the females in the reproduction of the herds and the increase of their value.<sup>42</sup> The bulls, rams, billy-goats and boars were of course present, or no reproduction of the flocks would have occurred, but there was neither a need for nor an interest in mentioning them.

The predominance of female animals is further underlined by the zooarchaeological evidence from both sanctuary and domestic contexts. At the Heraion on Samos, in the Archaic period, the ratio of male to female cattle was approximately one to eight, while for sheep and goats it was one to 48, and for pigs it was one male to ten females.<sup>43</sup> On Delos, on the Classical and Hellenistic farms, there was one ram for every nine ewes, and one billy-goat for every seven nanny-goats.<sup>44</sup> At Lousoi, at the Hellenistic settlement, the cattle were mainly female, and there were double as many female goats as compared to the males ones, and five to ten times more female sheep than male sheep.<sup>45</sup> This distribution of cattle, sheep and goats resembles the picture presented by modern ethnographic studies.<sup>46</sup> From the Greek sanctuary at Kommos on Crete, the teeth from the swine indicated the presence of 14 males and 12 females, but only three of the males were more than two years old, thus also suggesting that boars were rare.<sup>47</sup> It is seldom possible to ascertain from the zooarchaeological evidence whether or not the males were castrated, but oxen and wethers have been identified at Samos and Kalapodi.<sup>48</sup>

Modern scholarship has sometimes remarked upon the lack of correlation between the agricultural and the sacred calendars in ancient Greece.<sup>49</sup> The low number of uncastrated

<sup>35</sup> The term *teleion/teleon* (*NGSL* 1, lines 11, 21–22, 24, 26–27, 37–38 and 40 and commentary p. 129), a complete victim, should not be understood in the sense of uncastrated, but rather as a full-grown victim, see Casabona 1966, 37; Georgoudi 1990, 280; Rosivach 1994, 24 n. 42 and 150–151; van Straten 1995, 173 n. 53, or as a victim of the right age, see Brulé & Touzé 2008, 116–120.

<sup>36</sup> These figures are based on the indexes and include only the instances where the terms are preserved or can be safely restored. If the remaining inscriptions mentioning sacrifices in the PHI epigraphy database online are considered as well, around 20 bulls, 20 rams, eight boars and two goats can be added (<http://epigraphy.packhum.org/inscriptions>).

<sup>37</sup> Schwertheim 1983, no. 1, 4th/3rd century BC; Parker 2005, 484–485. The bulls are sacrificed to Alexikakos, Eirene and Apollo Karneios, and the latter also received an ox and a kid. The sacrificial calendar from Mykonos (*LS* 96, c. 200 BC), which lists five uncastrated victims, will be discussed further below.

<sup>38</sup> van Straten 1995, 175–186, esp. 182.

<sup>39</sup> van Straten 1995, 175–186, esp. 176.

<sup>40</sup> A way of getting rid of superfluous males could have been to sacrifice them, and if that was the case the low number of uncastrated victims would be surprising. On the other hand, the males are likely to have been killed off before they became adults and may therefore not have been designated with the terms for full-grown male animals.

<sup>41</sup> Chandezon 2003.

<sup>42</sup> Chandezon 2003, 65 and 288–293, see in particular nos. 1, 12, 14, 20, 25, 26, 27, 48 and 51. The *eperoi* that are mentioned together with ewes in no. 51 (p. 200), and interpreted as rams, are better taken as wethers, since they are exempt from the tax on wool.

<sup>43</sup> Boessneck & von den Driesch 1988, 10–11, 16, 23, 28, 35 and 40.

<sup>44</sup> Leguilloux 2003, 253.

<sup>45</sup> Forstenpointner & Hofer 2001, 173–174.

<sup>46</sup> In the east African pastoralist societies studied by Dahl & Hjort (1976, 28–33 and 88–89) the ratio of cows–bulls varied from 1:20 to 1:60, for sheep–rams between 1:10–1:20 and for goats–billy-goats 1:30, the proportions being due to both cultural and ecological factors.

<sup>47</sup> Reese & Ruscillo 2000, 477–481.

<sup>48</sup> At the Heraion on Samos, occasional bones from oxen, bulls, wethers, rams, billy-goats and boars have been identified, see Boessneck & von den Driesch 1988, 10, 23, 28, 33 and 40. At Kalapodi, one castrated *ovis* from the earliest levels was recovered, see Stanzel 1991, 24.

<sup>49</sup> Burkert 1985, 226; Chandezon 2003, 131–132, stating that not all sacrificial calendars follow the pastoral rhythm.



*Fig. 1. Nike giving water to a bull. Attic red-figure stamnos, Hector Painter, 450–425 BC, München, Staatliche Antikensammlungen 2412. Photo: Staatliche Antikensammlungen und Glyptothek München.*

animals, however, suggests the opposite. Michael Jameson has shown that there was an evident adaptation in the choice of sacrificial animals, not only as to the sex, but also when they were to be killed, in order to suit the supply. Lambs, for example, are prescribed after the ewes have given birth, but pregnant females very seldom, because the killing of such animals depletes the herd.<sup>50</sup> The inscriptions, both sacred and secular, and the zooarchaeological material seem to reflect the reality of animal husbandry—many females and castrated males, in addition to a few uncastrated males. In fact, Jonathan Z. Smith has suggested that animal sacrifice can be explained as arising from a kind of regularized and ritualized flock management.<sup>51</sup>

<sup>50</sup> Jameson 1988, esp. 102–103 and 106–107.

<sup>51</sup> Smith 1987, 191–205, discussion 206–235. Cf. Kadletz 1976, 291.

## Iconography

Let us now turn to another important category of evidence for Greek religion, iconography. Vase-paintings, predominantly Attic ones, as well as votive reliefs, offer a rich source of information on sacrificial practices, which should be compared with the epigraphical evidence.

From the inscriptions, it is evident that the most common sacrificial animals were sheep, followed by piglets, goats, pigs and, as the least frequent victim, cattle.<sup>52</sup> The vase material presents a very different picture. If we consider the evidence collected in Folkert van Straten's and Jörg Gebauer's volumes on the representations of animal sacrifice on Attic vases, there are *c.* 200 animals depicted in these scenes.<sup>53</sup> Of these 60% are

<sup>52</sup> van Straten 1995, 171–173.

<sup>53</sup> van Straten 1995; Gebauer 2002; see also Durand 1986.

*Fig. 2 (right). Ram in a sacrificial context. Attic red-figure cup, c. 450 BC, Rome, Vatican Museums 16508. Photo: Vatican Museums.*



*Fig. 3 (below). Sacrifice of a billy-goat next to an altar. Attic red-figure bell-krater, Kleophon Painter, c. 440–420 BC, Agrigento, Museo Archeologico Regionale AG 4688. After De Miro 1968, Tav. 87.*



bovines, around 20% are sheep, 15% are goats and 10% are pigs. Cattle clearly dominate the iconographical evidence, and several scenes depict not just one but several such animals as sacrificial victims.<sup>54</sup>

This difference between the inscriptions and the vases (and the votive reliefs), as to the choice of sacrificial animals, has been convincingly explained by van Straten as being linked to the purpose and character of each category of evidence.<sup>55</sup> The vase-paintings rarely or never depict a precise, real sacrifice: they depict imaginary situations, contrary to the votive reliefs, which reflect private sacrifices performed within a particular cult. The inscriptions, on the other hand, in the form of sacrificial calendars and cult regulations, provide us with more reliable evidence for what was actually sacrificed. If the epigraphical material reflects the ritual reality of state and deme sacrifices, and the reliefs reflect private cult practice, the vases depict the ultimate, most desired sacrificial situation, where the most prestigious and expensive animal could be offered, no matter the cost involved.

The popularity of cattle on the ceramic evidence constitutes one remarkable distinction from the inscriptions, but

<sup>54</sup> See, for example, Ferrara, Museo Nazionale T 57 c VP, van Straten 1995, V78, fig. 13; Boston, Museum of Fine Arts 13.195, van Straten 1995, V74, fig. 17.

<sup>55</sup> van Straten 1995, 170–181.



Fig. 4. Procession with cow and sow. Attic black-figure dinos fragment, Lydos, c. 560–540 BC, Athens, National Museum Acropolis 607. After Graef & Langlotz 1925, vol. 1, no. 607, pl. 33.

what about the sex of the animals? Of interest here are the sacrificial scenes where the hindquarters and stomach of the animals can be observed, that is, in those scenes where any worshippers participating in the ritual do not cover this area, and the back legs of the animals are rendered so that the presence of the scrotum and the sheath or the udder may be detected.<sup>56</sup> A careful inspection of the evidence at hand proves that there is a notable number of testicles to be seen, and one gets the impression that the vase painters intentionally depicted uncastrated animals.

If we leave aside those representations that are too damaged, or those where only the front part of the animal is rendered, there are c. 165 vases left, which produce a surprising

result. Of the c. 90 cattle, 35 have a scrotum that is clearly visible and must be bulls (Fig. 1), while on an additional 12, the sheath can be seen (but not the scrotum), that is, they are male, but it is not possible to tell if they are meant to depict bulls or oxen. Of the 35 sheep, 17 are rams (Fig. 2), while of the 30 goats, 7 are billy-goats (Fig. 3). None of the 19 pigs can be definitively classified as boars because of the representation of a scrotum, though some of the animals have been depicted with what may be a sheath. There are also a few evidently marked females: three cows and three sows (Fig. 4).<sup>57</sup>

Thus, of the animals included in van Straten's and Gebauer's sacrificial corpora, more than one-third must be considered as depicting bulls, rams or billy-goats. Even though the

<sup>56</sup> On the reliefs, usually only the head of the animal victim is seen, and when the body is visible details for identifying the sex can rarely be distinguished. A 4th-century BC relief from Athens dedicated to Herakles depicts a bull (Athens, Epigraphical Museum 3942; van Straten 1995, R90, fig. 93), while a relief from the Amphiareion seems to depict a ram (Athens, National Museum 1395, 4th century BC; van Straten 1995, R37, fig. 72). A well-known Early Classical relief from the Athenian Acropolis (inv. no. 581) definitely renders a sow, perhaps even a pregnant one, see van Straten 1995, R58, fig. 79.

<sup>57</sup> Female victims: Paris, Louvre F 10, Gebauer 2002, P 2, fig. 2; Athens, National Museum 2473 (Acropolis 607), van Straten 1995, V13, fig. 6, Gebauer 2002, P 4, fig. 4; Boston, Museum of Fine Arts 13.195, van Straten 1995, V74, fig. 17, Gebauer 2002, P 28, fig. 27; Paris, Niarchos Collection, van Straten 1995, V55, fig. 2, Gebauer 2002, P 3, fig. 3; Athens, National Museum, Akropolis 636, van Straten 1995, V67, fig. 20, Gebauer 2002, P 16, fig. 16; Athens, National Museum 426, van Straten 1995, V110, fig. 25.



Fig. 5. Sphagia with ram. Attic red-figure cup, recalling the Eucharides Painter, c. 500–475 BC, Cleveland Museum of Art 1926.242. Photo: The Cleveland Museum of Art, Dudley P. Allen Fund 1926.242.

majority of the animals shown in ritual contexts are simply rendered as neutral cattle, sheep, goats or pigs, which may have been male or female, the number of uncastrated males is remarkable.<sup>58</sup> This should be compared with the epigraphical evidence, where in the four extensive Athenian sacrificial calendars considered previously, uncastrated males constituted around 4% of the victims.

A few of these scenes show rituals where uncastrated males were preferred, such as the depiction of a battlefield *sphagia* on a famous red-figure cup in Cleveland (Fig. 5), and an intriguing stamnos that is now in Basel depicting Achilles and Hektor framing a dead ram—perhaps referring to either battlefield sacrifices or oath rituals (Fig. 6).<sup>59</sup> In most cases, however, it is regular *thysia* sacrifices that are represented, i.e., the same kind of sacrifice as those listed in the sacrificial calendars. A most remarkable case of the urge to show the uncastrated nature of the victim is found on a red-figure head vase in Ferrara, depict-

<sup>58</sup> Around one-fifth of the victims, for which the hindquarters and stomach are clearly visible, bear no signs of scrotum or sheath. Some of these animals may be depictions of castrated animals, but it is also possible that the vase-painter simply choose not to specify the sex.

<sup>59</sup> Cleveland, Museum of Art 26.242, van Straten 1995, V144, fig. 112; Basel, Antikenmuseum und Sammlung Ludwig, BS 477, Gebauer 2002, Sv 11, fig. 146. For the prominence of male victims in representations of battlefield related rituals, see Gebauer 2002, Sv 7, Sv 7a, Sv 8 and Sv 10, figs. 141–143 and 145.

ing two men butchering a billy-goat (Fig. 7).<sup>60</sup> The animal is lying on its back on a table, legs raised in the air. The *mageiros*, the sacrificial butcher/chef, is standing to the left, while his young and naked assistant is holding the goat's back legs to the right. The goat's scrotum rises prominently between its legs, defying all laws of gravity. Here, the artist clearly wanted to stress that the animal is uncastrated.<sup>61</sup>

We can note that the preference for uncastrated animals in vase-paintings goes even further, if we consider other types of scenes aside from those connected to sacrifice. In representations of the myth of Io being transformed into a cow, a bovine with testicles (and not an udder) is sometimes depicted (Fig. 8).<sup>62</sup> Vase scenes showing Theseus' struggles with the Krommyonian sow, which is clearly a female pig according to the literary tradition, occasionally render this animal as male with a sheath (Fig. 9).<sup>63</sup> An early 5th-century red-figure cup in the Vatican depicts the infant Hermes in a *liknon* and the upset Apollo among a herd of cattle, which are apparently the animals that had been stolen by the young god.<sup>64</sup> Of these, four are definitely bulls and at least one is an ox (the sheath can be seen but not the hindquarters), while none of the animals are represented as heifers (Fig. 10). This is a very different composition than that of the herd described in the *Homeric hymn to Hermes*, where Apollo explicitly says that the cows that Hermes stole were grazing separately from the bull, and that the missing animals were only the females, while the bull and the dog had been left behind.<sup>65</sup>

Another example of the preference for uncastrated animals is the Parthenon frieze and its impact on vase-painting. The animals being led in the frieze's depiction of the Panathenaic procession consist of 14 bovines and four sheep, which are all to be sacrificed to Athena. The cattle that have visible hindquarters and stomachs exhibit no trace of scrota or sheaths,

<sup>60</sup> Ferrara, Museo Nazionale T 256 b VP, c. 470–460 BC; van Straten 1995, V152, fig. 119; Gebauer 2002, Z 20, fig. 184.

<sup>61</sup> A similar "floating" scrotum can be seen on a red-figure fragment by Onesimos (Paris, Louvre C 1135), showing animals slain by Aias when he was blinded by rage, see Gebauer 2002, Sv 12, fig. 147.

<sup>62</sup> See *LIMC* V (1990), 675 and 665, s.v. Io I, no. 4 (Hamburg, Museum für Kunst und Gewerbe 1966.34; my Fig. 8) and no. 11 (Würzburg, Martin von Wagner Museum ZA 48) show the testicles and no. 13 (Vienna, Kunsthistorisches Museum IV 3729) the sheath, while the tail of the animal skin worn by Argos on no. 8 (Boston, Museum of Fine Arts 08.417) is misinterpreted as a scrotum (N. Icard-Gianolio). Pliny (*HN* 16.239) reports that a tradition existed where Io was transformed into a bull, see Simon 1985, 274.

<sup>63</sup> *LIMC* VII (1994), 930 and 926 s.v. Theseus, no. 34 (J. Neils), London, British Museum E36.

<sup>64</sup> Vatican 16582; *LIMC* II (1984), 308, s.v. Apollon, no. 1042 (W. Lambrinouidakis *et al.*).

<sup>65</sup> *Hymn. Hom. Mer.* 191–198. Cf. also the Boeotian mid-6th-century BC oinochoe signed by the potter Gamedes (Paris, Louvre MNB 501), which depicts a shepherd with his flock consisting of a bull, two rams and three ewes.



Fig. 6 (right). Ram on its back between Achilles and Hektor. Attic red-figure stamnos, Triptolemos Painter, c. 480 BC, Antikenmuseum Basel und Sammlung Ludwig, Inv. BS 477. Photo: A.F. Voegelin.

Fig. 7 (below). Butchering of a billy-goat. Attic red-figure bead-vase/kantharos, Syriskos Painter, c. 480–460 BC, Ferrara, Museo Nazionale T 256 B. Photo: museum.

all in accordance with the tradition that Athena was to receive only female victims.<sup>66</sup> The animal procession of cattle on the south side of the frieze has been excerpted on a number of Attic vases, but here, interestingly enough, the cattle are clearly represented as bulls and not as cows, even though the rest of the composition follows the iconographic scheme of the frieze in detail (Fig. 11).<sup>67</sup> As a last illustration of this male iconographic preference we may take depictions of ploughing. A real Greek farmer would not have used bulls to work his fields, considering them too difficult to handle, a point made by many ancient authors.<sup>68</sup> Vase-paintings showing this agricultural activity are not numerous, but it should be noted that at least two scenes render the yoked animals as bulls, one of them even depicting the hero Bouzyges, the inventor of the plough (Fig. 12).<sup>69</sup>

We are clearly facing a discrepancy between inscriptions and images as regards the presence of uncastrated animals. This preference for uncastrated male animals noted on



<sup>66</sup> Neils 2001, 150–154. See also *JG* II<sup>2</sup>, 334, regulating the Lesser Panathenaia, the animals sacrificed to Athena are specified as cows (line 19); cf. Brulé 2007, 231–254.

<sup>67</sup> Neils 2001, 208–213, see also a well-known volute krater in Ferrara, where two large bulls are solemnly led in a procession approaching a seated Apollo (Ferrara, Museo Nazionale T 57 c VP; Neils 2001, 213, fig. 149; van Straten 1995, V78, fig. 13).

<sup>68</sup> Hes. *Op.* 436–440; Xen. *Cyr.* 7.5.62–63; Gal. *De alimentorum facultatibus* III.6 (K675–676).

<sup>69</sup> Bulls: Harvard Art Museums/Arthur M. Sackler Museum 1960.345, red-figure cup, c. 425 BC (my Fig. 12), Robinson 1931; *LIMC* III (1986), 154, s.v. Bouzyges, no. 2 (C. Bérard); London, British Museum 1906.12–15.1, black-figure Sienna cup, c. 560 BC, Durand 1986, 182, fig. 88; *LIMC* III (1986), 154, s.v. Bouzyges, no. 1 (C. Bérard). For representations of ploughing with oxen, see Durand 1986, 183–186, figs. 89–91 (Paris, Louvre F 77, The Hague OC 3.39, Berlin F 1806); von Bothmer 1990, 139, no. 106; Malagardis 1988, 116–122.

the vases is in fact also found in the literary sources, in particular in accounts of mythic or imaginary sacrifices. In the *Iliad* (23.146), Peleus has vowed that at his home-coming Achilles should sacrifice, not only a hecatomb, but also 50 rams, *enorcha mela*, to the river Spercheios. This is an outstanding offering, matching an extraordinary and very unlikely event—that Achilles would ever return alive home to his father, instead of dying at Troy and achieving immortal fame and glory. In fact, ancient texts provide us with many instances of sacrifices that owe their extraordinary character to the use of uncastrated males. They may encompass an unrealistic number of victims, such as the 81 black bulls sacrificed on the beach at Pylos by Nestor (*Od.* 13.172–184). In other instances, the animals are



*Fig. 8. Io turned into a bull. Attic red-figure neck amphora, Eucharides Painter, c. 480 BC, Hamburg, Museum für Kunst und Gewerbe 1966.34. Photo: Museum für Kunst und Gewerbe, Hamburg.*



*Fig. 9. Theseus struggling with the Marathonian bull and the Krommyonian sow. Attic red-figure cup, Painter of Louvre G 36, c. 520–510 BC, London, British Museum E36. © Trustees of the British Museum.*



Fig. 10. *The infant Hermes and Apollo's cattle. Attic red-figure cup, Brygos Painter, c. 480 BC, Rome, Vatican Museums 16582. Photo: Vatican Museums.*

handled in a manner far removed from the caution necessary in real life: for example, the bulls that roamed freely together in the precinct of Poseidon on Atlantis and could be caught with the help of staves and nooses, with no need for iron weapons, and then calmly led away to be sacrificed.<sup>70</sup>

### The use of uncastrated victims: castration in cult?

In real life, uncastrated male animals were rarely sacrificial victims, but the vases and literary sources, which do not have to relate to the cultic reality in the same sense, present them in abundance. If the epigraphical material reflects what victims were actually offered at state and deme sacrifices, the images and texts seem to render the ultimate, most desired sacrificial situation, when the most prestigious and expensive animal could be chosen, no matter the practicalities involved nor the cost. The next issue to address is why uncastrated victims were

chosen at some sacrifices. Did they fulfil a particular role in Greek cult?

To some extent, the choice of an uncastrated male could depend on the recipient. Most uncastrated victims found in the sacred laws and sacrificial calendars are given to prominently male gods, such as Zeus, Poseidon, Dionysos, Apollo and Hermes, as well as a few locally important heroes, such as Erechtheus.<sup>71</sup> The link between Dionysos and the uncastrated state may have been perceived as particularly strong, as

<sup>70</sup> Pl. *Cri.* 119d–120a.

<sup>71</sup> The following list is far from comprehensive. Bulls: *IG* II<sup>2</sup>, 1146 = *LS* 31, line 8 (Poseidon and Erechtheus); *LSS* 94, line 3 (Poseidon); *LS* 96, line 30 (Apollo), *LSA* 32 (Zeus), lines 7 and 12; *IG* II<sup>2</sup>, 1006, line 13 (Dionysos). Rams: *IG* I<sup>3</sup>, 5, line 4 (Poseidon and Triptolemos); Jameson, Jordan & Kotansky 1993, 14, line A 17 (Zeus Meilichios); *LS* 20 B, line 51 (Galios); *LS* 18, col. V, lines 49–52 (Hermes); *LS* 96, lines 5–6 (Poseidon Temenites) and lines 8–9 (Poseidon Phykios); *LSA* 72, lines 36–37 (Zeus Patroos and Apollo Telemessos); *ID* 440 A, line 61 (Poseidon Asphaleios and Orthosios). Billy-goats: *NGSL*, no. 1, line 20 (Apollo); *LS* 96, line 27 (Dionysos Bacheus); *LS* 90, line 4 (Dionysos). Boars: *LSS* 89, line 3 (Zeus Amalos); *ID* 440 A, line 61 (Poseidon); *Andania*, 31, lines 34, 35 and 69 (Apollo Karneios). See also Jameson 1994, 316 n. 13; Stengel 1910, 191–195.



Fig. 11. Two youths leading a bull to sacrifice. Attic red-figure oinochoe, School of the Dinos Painter, c. 420 BC, Harvard Art Museums/Arthur M. Sackler Museum, Bequest of David M. Robinson, 1959.129. Photo: Imaging Department © President and Fellows of Harvard College.

he was even called *Enorches*, “uncastrated”, in certain cults.<sup>72</sup> The head vase with the conspicuous depiction of goat testicles mentioned above (Fig. 7) demonstrates multiple connections to Dionysos; the scene on the opposite side shows the god reclining, the two plastic heads represent Dionysos and a satyr, and the vase is a kantharos (the god’s particular drinking vessel).<sup>73</sup> On the other hand, we should be careful not to over-stress the link between the sex of the victim and the character of the deity receiving them, since uncastrated males were also sacrificed to Kore, Eirene, Ge and Demeter.<sup>74</sup> To show that

<sup>72</sup> Perhaps at Phigaleia, Lycoph. *Alex.* 5.212, and on Samos, Hesychios E 3255 (Latte), s.v. *enorches*. On the close relation between Dionysos and bulls in art and texts, see Bérard 1976.

<sup>73</sup> Ferrara, Museo Nazionale T 256 b VP.

<sup>74</sup> Kore: *IG II<sup>2</sup>*, 847, line 25, bull; *LSS 10 A*, lines 63–64, ram (Pherephatte); *LS 20 B*, line 44, ram; *IG II<sup>2</sup>*, 1673, line 72, ram; Engelmann & Merkelbach 1973, no. 207, lines 47 and 78 (= *LSA 26*), ram; *LS 96*, line 17, boar. Eirene: Schwertheim 1983, no. 1, line 12, bull. Cf. *LS 20 B*, line 18, a black billy-goat most likely to Ge. Demeter: *IG II<sup>2</sup>*, 847, line

the match between divinity and sacrificial victim should not be simplified, it can be noted that Jupiter, who was certainly a major Roman male god, never received bulls, but only castrated cattle, that is, oxen. Apparently this rule was considered as surprising even in antiquity and was commented upon in the sources, and it has also been discussed by modern scholars.<sup>75</sup>

Uncastrated victims seem to have been preferred at some rituals of a particular nature; this is evident from the literary, epigraphical and iconographical sources. Battlefield *sphagia* were often performed with rams, judging from extant representations (Figs. 5–6).<sup>76</sup> Purifications, which were usually accomplished with piglets, could be undertaken with uncastrated males in particularly severe cases, as, for example, when a sanctuary on Delos was purified after the removal of a human corpse using a bull, a boar and a ram, which were burnt.<sup>77</sup> This combination of three male animals, a *trittoa*, was also used at oath takings. An early 3rd-century BC inscription from Kos, recording an oath, specifies that the bull, ram and boar, which are here called the *horkomosia*, should be fully grown, presumably to ascertain that they were proper males.<sup>78</sup> The written evidence has recently been corroborated by a spectacular find on Thasos, near the agora, where a young bull, a ram and a boar were found cut in half and deposited in two heaps, presumably as part of a ritual connected with purification or an oath.<sup>79</sup>

Is it possible that the uncastrated animals may have been castrated as part of these rituals? Paul Stengel, the father of the study of Greek ritual practice, was convinced that the testicles were the crucial part of the animal victim used at oath takings and also at purifications.<sup>80</sup> The ancient sources speak of the oath victims as *tomia*, “that which is cut up” and explain that

25, bull; *LS 20 B*, line 27, a ram for (Demeter) Achaia. For bulls’ testicles hung on the statue of Artemis at Ephesos, see below.

<sup>75</sup> Prescendi 2007, 32–33, esp. n. 118. For pregnant victims sacrificed to Athena and Artemis, both virgin goddesses, see Bremmer 2005, 161–162.

<sup>76</sup> Jameson 1991, 217–219; Jameson 1994, 320–324; Gebauer 2002, Sv 7, Sv 7a, Sv 8 and Sv 10, figs. 141–143 and 145.

<sup>77</sup> *IG XI*: 2, 199 A, lines 70–72, 274 BC; Clinton 2005, 172. See also the regulations for the mysteries at Andania (91/90 BC), where the sanctuary is purified with a ram and two white lambs (*Andania*, 35, lines 67, and 129–130), and the purification of the Asklepieion on Delos using a boar, *ID 290*, lines 115–116, 246 BC; cf. *ID 444*, line 34, 177 BC.

<sup>78</sup> Segre 1952, 9, no. XII, lines 9–10. For uncastrated oath victims, see the treaty between Eleutherna and an anonymous city, early 3rd century BC, Chaniotis 1996, 190, no. 6, and 193, and one between Teos and Kyrbissos, 3rd century BC, Robert & Robert 1976, 155, lines 54–56, and commentary 228–229. One of the two *kaproi* mentioned in a sacrificial context in Homer occurs in the oath taking in *Il.* 19.197, 254 and 266. Cf. Stengel 1910, 82 and 195–196; Faraone 1993, 65–69; Bertl 2009, 193–194.

<sup>79</sup> Blondé *et al.* 2001; Blondé *et al.* 2003; Blondé *et al.* 2005.

<sup>80</sup> Stengel 1910, 78–85; 1924, 319–321; Maass 1925, 462–463; Ziehen 1939, 593; Burkert 1983, 36.



Fig. 12. *Bouzyges ploughing with bulls*. Attic red-figure bell-krater, Hephaistos Painter, c. 430–420 BC, Harvard Art Museums/Arthur M. Sackler Museum, Bequest of David M. Robinson, 1960.345. Photo: Imaging Department © President and Fellows of Harvard College.

the oath takers were to hold these parts or stand on them while they took the oath. If they broke it, they would end up just like the animals that had been killed. Stengel identified the *tomia* as not just any part, but more precisely as the animals' cut-off testicles. However, Jean Casabona's careful and sophisticated study of the Greek sacrificial terminology has shown that this interpretation is not correct and testicles were of no particular importance at oaths.<sup>81</sup> The importance of the uncastrated vic-

<sup>81</sup> Casabona 1966, 220–225. Rudhardt (1992, 283), Faraone (1993, 68 n. 37) and Berti (2009, 194) also remain sceptical as to Stengel's interpretation. The testicles of the piglets which had been used for purification

tims at purifications, oath takings and battlefield *sphagia* lies instead in the fact that bulls, boars and rams were "marked" victims that were unusual and prestigious, suitable for high-intensity rituals or powerful actions performed on occasions of stress and danger.<sup>82</sup> The fierceness of an uncastrated animal

and then deposited at the Hekataia could apparently be removed and eaten by the young and reckless, see Dem. 54.39; Casabona 1966, 223. The Thasos deposit, where the animals had been cut in half, may constitute one way of accomplishing the *tomia*, see Blondé *et al.* 2001; Blondé *et al.* 2003; Blondé *et al.* 2005.

<sup>82</sup> See Jameson 1994, 315–317. For high-intensity rituals and powerful actions making use of unusual sacrificial actions or victims, see Ekroth

may also have made it an appropriate victim at particular sacrifices, where this trait was exploited for ritual purposes. This was the case at a ritual for Aristomenes at Messene, which is described by Pausanias (4.32.3–4). The bull chosen for sacrifice was tied to a column on the hero's grave and, as the animal was untamed and not used to being restrained, it moved the column—an outcome taken as a good sign.

In *Homo necans*, Walter Burkert argued for the importance of castration rituals within Greek animal sacrifice and explained that the rarity of mentions within the sources to such actions was due to them largely belonging to the unmentionable category of ritual actions, or *arreta*.<sup>83</sup> Two texts are put forward by Burkert as explicit evidence. An epigram by Martial tells of a goat that was to be castrated at a sacrifice to Dionysos because it had eaten of the vines.<sup>84</sup> A simple farmer is asked to help the priest to cut off the goat's testicles, so that the odour of the meat should go away. When the priest struggles with the animal he has a hernia (in his scrotum?), which the farmer mistakes for the goat's scrotum and therefore cuts it off, thus turning the priest, and not the goat, into a gelding, a Gallus. The second instance of ritual castration is found in the Anatolian mysteries of Demeter or Deo, as described by Clemens of Alexandria.<sup>85</sup> The goddess was enraged at Zeus having raped her, an action that called for various kinds of supplications, such as the drinking of bitter potions, the tearing out of the victims' hearts, and unspeakable obscenities. According to Clemens, the same rituals were performed in the Phrygian cult of Attis, Kybele and the Korybantes, where it was said Zeus had torn off the testicles of a ram and thrown them into the lap or onto the bosom of the goddess, pretending to have castrated himself in order to atone for his act.<sup>86</sup>

Burkert takes Martial's story as demonstrating that castration played a central role in sacrifice and that the he-goats sacrificed to Dionysos or Aphrodite were as a rule castrated, such was the procedure.<sup>87</sup> Clemens' account is also interpreted as a reflection of what was done with the sacrificial animal in ritual, namely castration, though in this case set in the sphere of the gods.<sup>88</sup> However, the fact that both texts clearly echo an Eastern tradition of castration as a cultic action should not be overlooked. In Martial, the castrated priest becomes a Gallus,

2002, 325–330; Jameson 1965, 162–163.

<sup>83</sup> Burkert 1983, 68–70 and 282–283.

<sup>84</sup> Mart. 3.24; Burkert 1983, 68.

<sup>85</sup> Clem. *Al. Protr.* 2.15; Burkert 1983, 68–69 and 283.

<sup>86</sup> This action, according to Walter Burkert's interpretation, works on two levels: on the one hand, as a punishment for the sexual crime, and, on the other, as a link between Demeter and fertility by sacred marriage (Burkert 1983, 283).

<sup>87</sup> Burkert 1983, 68; cf. 1966, 100 and 114 n. 62. He further takes the Dionysiac phallophoric processions as presupposing castration (Burkert 1983, 70–71).

<sup>88</sup> Burkert 1983, 283.

the title for the eunuchs in charge of the cult of the Mother of the Gods in Anatolia, while the story of Zeus tearing off the ram's testicles, pretending to castrate himself, can be seen as a reference to the self-castration in the myth of Attis and the self-castration performed by cult attendants in a state of religious frenzy so as to become eunuchs, a motif that seems to have become more prominent in the Hellenistic and, most of all, Roman sources.<sup>89</sup> Furthermore, the rituals described by Clemens may be connected in particular to the *taurobolium* or *kriobolium* which in the Roman Imperial period (2nd and 3rd centuries AD) had started to focus on the castration of a bull (or a ram), and the dedication of its testicles when the ritual became incorporated into the cult of Magna Mater.<sup>90</sup>

Castration within a religious context clearly seems to have been more established in Asia Minor than in Greece, being part of Anatolian custom.<sup>91</sup> A ritual handling of scrota has been convincingly argued for in the cult of the Ephesian Artemis, whose famous statue displays a multitude of rounded objects. These were usually taken to represent breasts (*Fig. 13*) until Gérard Seiterle suggested that they are in fact scrotal sacs, which had been cut off at sacrifice and hung onto the goddess' image.<sup>92</sup> Seiterle's reconstruction of bulls' scrota has been criticized, however, due to the low frequency of cattle bones recovered at Ephesos.<sup>93</sup> Gerhard Forstenpointner, the zooarchaeologist in charge of the animal bone material, has instead proposed that the objects are goats' scrota, because goats are prominent in the zooarchaeological evidence and their scrota are large enough to match the pendants on the goddess' statue.<sup>94</sup> On the other hand, if these items are testicles from bulls that were only *castrated* as part of the ritual, but not killed, they would not have left any trace in the zooarchaeological evidence.<sup>95</sup> We should remember here that the stan-

<sup>89</sup> Roller 1999, 237–259, points out that the castration of Attis seems like a late addendum to the myth, even though eunuch priests were an Anatolian tradition; see also Lancellotti 2002, 96–105 and 112–115; Casadio 2003, 235–248; Munn 2006, 160–161; Berndt-Ersöz 2006, 12–14. Also, the motif of the sacrifice of a billy-goat as punishment for consuming the god's sacred plant, though found in Classical texts and images, becomes more frequent in Hellenistic and Roman times; see Stroocka 1998, 93–96.

<sup>90</sup> On the phases of the *taurobolium*, which was originally a bull chase that in its third phase in the 5th century AD had become a ritual centred on the shower of a bull's blood, see Rutter 1968; Borgeaud 2004, 110–119.

<sup>91</sup> See Nock 1925–1926; Rousselle 1993, 122–128; Roller 1999, 237–259; Lancellotti 2002, 96–115; Lightfoot 2002; Munn 2006, 157–169.

<sup>92</sup> Seiterle 1979, 9–14; Munn 2006, 164–165. For alternative explanations linking the objects to representations of prehistoric goddesses and, in particular, a type of Hittite ritual leather bag, see Helck 1984; Morris 2001; Morris 2008.

<sup>93</sup> Fleischer 1999, 605 and 609; Forstenpointner *et al.* 2013.

<sup>94</sup> Personal communication, G. Forstenpointner.

<sup>95</sup> Fleischer 1983, 87; Munn 2006, 165 and n. 104. Cf. the Roman *taurobolium* where the bull's testicles were cut off during the ritual and later



Fig. 13. Roman copy of the statue of Ephesian Artemis with attached bull's testicles, 2nd century AD. © Austrian Archaeological Institute, photo N. Gail.

dard method for castrating a bull was to cut open the scrotum, bare the testes and remove them whole.

Dedications of testicles were apparently also made to Zeus Labrandeus in Karia; a 4th-century stele depicts an image of the god adorned with the same rounded objects as the statue of Artemis.<sup>96</sup> Furthermore, the fact that castration played a different and more significant religious role in Anatolia than

dedicated, see Rutter 1968; Borgeaud 2004, 110–119.

<sup>96</sup> London, British Museum 1914.7–14.1; Waywell 1993. For other representations of Karian divinities adorned with similar rounded objects which may represent testicles, see Cook 1925, 592–596. For the sugges-

in Greece is manifested also by the fact that the priests of some major cults were eunuchs, for example, at the Artemision at Ephesos and the cult of Kybele at Pessinous.<sup>97</sup> Such practices may be connected also to the castration of the sacrificial animals.

For the Greeks, on the other hand, castration of the victim does not seem to have had any ritual significance. It was the uncastrated nature of the victim as a whole that was of importance when a bull, ram or boar was sacrificed, not the act of castration nor the cut-off testicles. Moreover, the castration of humans and eunuchs alike was viewed with dislike, as an Eastern, “non-Greek” practice, in particular one which was associated with Persia, and as an act committed by “the others”.<sup>98</sup> This is evident from a number of stories in Herodotos, the most horrific one concerning the Karian Hermotimos, who was castrated by the Chian slave-trader Panionios and sold to the Persian king.<sup>99</sup> After a spectacular career, Hermotimos managed to get his hands on the perpetrator and his family, and he took a terrible revenge by forcing Panionios to castrate his four sons with his own hands and then having the sons castrate their father.<sup>100</sup> In Greek mentality, to castrate someone was to rob them of all power, as Kronos does when he cuts off his father Uranos’ genitals with a sickle and throws them into the sea, resulting in the birth of Aphrodite.<sup>101</sup> Castration was also the most terrible way to mutilate a human body, whether dead or alive, and subsequently had no place within religion.<sup>102</sup> In the *Odyssey*, the goatherd Melanthios is killed by having his ears, nose, hands and feet cut off and his private parts torn off and thrown raw to the dogs, while Priam expresses his fear of having the genitals of his corpse eaten by

tion that the shape of the aryballos was inspired by small leather vessels made from animal scrota, see Hommel 1978.

<sup>97</sup> Roller 1999, 229–232; Lancellotti 2002, 95–105; Lightfoot 2002; Munn 2006, 159–161.

<sup>98</sup> Miller 1997, 213–215, points out that eunuchs were well known in Classical Athens and perhaps arrived there as a part of the booty of the Persian wars; *OCD*<sup>3</sup>, s.v. eunuchs; Bardel 2002; Munn 2006, 157–163.

<sup>99</sup> Hdt. 8.105–106.

<sup>100</sup> Herodotos, one of our earliest Greek sources on human castration, also speaks of the tyrant Periander of Corinth sending off 300 boys from the leading families in Korkyra to Alyattes of Sardis for them to be made into eunuchs, an action stopped by the people of Samos (Hdt. 3.48). Cf. Hdt. 6.32, the castration of young boys in connection with the Ionian Revolt in 494 BC.

<sup>101</sup> Hes. *Theog.* 154–187. Aphrodite’s birth from the scrotal sac seems to be represented in a small Early Archaic terracotta figurine from Perachora, which was manufactured in Corinth, see Payne 1940, 231–232, no. 183a, pl. 102. Burkert 1983, 206–207, finds that the myth of Uranos reflects the castration of sacrificial animals whose genitals would be thrown over the shoulder into the water without turning around to look. The view of castration as a loss of force can be linked to there being a metonymy between the castration of bulls and cuckoldry, see MacInerney 2010, 14–15.

<sup>102</sup> Bardel 2002.

the dogs (*Il.* 22.75).<sup>103</sup> Considering this attitude, it is doubtful whether human castration among the Greeks should be connected conceptually with animal castration at all, in cult or elsewhere. The prominent linking by Martial and Clemens of the castration of an animal to that of a human or divine figure who loses his entire scrotum reflects a cultural and cultic context different from the Greek one and should not be taken as representative of the treatment of male sacrificial victims during the Archaic, Classical and Hellenistic periods.<sup>104</sup>

## The ideal of the uncastrated male animal

Neither the act of castration nor the cut-off testicles and scrota themselves seem to have had any particular role in Greek cult. A sacrificial victim, a *hiereion*, was supposed to be pure and perfect, *katharon kai enteles*, but the lack of testicles did not mean that the victim was considered maimed and therefore unsuitable for sacrifice.<sup>105</sup> The practice of castrating animals required in animal husbandry was apparently so prevalent that it did not interfere with the concept of sacrificial victims having to be unblemished. There are even rare occasions where a castrated victim is required, a *tomias*, without specifying the species, as in a recently published funerary foundation from Hellenistic Lydia stipulating the annual sacrifice of a three-year-old gelding to Helios, probably a pig.<sup>106</sup>

On the other hand, although practical religion was adapted to the agricultural reality in terms of the choice of animal, there seems at the same time to have existed a notion of the

uncastrated male as an ideal or even *the* ideal.<sup>107</sup> Even if in reality the bull, ram, billy-goat or boar was a rarity in the flock as well as at the altar, a fascination with the uncastrated male is evident. The profusion of uncastrated animals in vase paintings, not only in sacrificial images but also in scenes where cows and sows would be expected, suggests that uncastrated males were an iconographic norm.<sup>108</sup> The ferocity of the uncastrated males and the fact that they were difficult to control or even dangerous must further have contributed to their standing. A number of red-figure Attic cups show Theseus capturing the Marathonian bull, and interestingly the rope used to restrain the animal is tied, not only around the bull's feet but also around his scrotum (*Fig. 9*).<sup>109</sup> A similar appeal is reflected by the mass sacrifices of bulls and rams found in the literary sources, in particular those referring to myth or fiction. The fact that Columella (*Rust.* 6.26.3) advised the farmer to leave the empty scrotum on the castrated bull so that he would not look too feminine suggests that even if castration was a necessity, it was not the ideal.

The inscriptions, which are closer to the ritual reality, show that the uncastrated males had their own particular terms—sometimes these terms were even reinforced by the addition of the term *enorches*, “uncastrated”—and that they were rare and expensive animals. These victims were used in high-intensity rituals, where a lot was at stake, such as sacrifices on the battlefield, at major purifications and at oath-takings. Within the context of regular *thysia* sacrifice, the choice of a bull, ram, billy-goat or boar constitutes a powerful action, distinct and different from the offering of an ordinary animal, and can therefore be used to mark both the importance of the situation and the status of the recipient.<sup>110</sup> After having raided Polyphemos' flocks and escaping the blinded Cyclops, Odysseus divides the sheep equally among his men, but he alone is honoured with

<sup>103</sup> *Od.* 22.474–477, cf. 18.85–87, where king Echetos, who maimed people the same way, is mentioned. The fact that the *medea*, i.e. both the penis and the scrotum, are ripped off suggests that the action is meant to be lethal, as this procedure often leads to major haemorrhage. Regular castration usually entails the removal of the testicles or the cutting or breaking of the spermatic cords, a fact often overlooked by modern scholars; see the discussion in Taylor 2002. At the emasculation of the *bijdras* in India, both the penis and the scrotum are separated from the body, see Nanda 1999, 26–29.

<sup>104</sup> Another distinction is that the two instances of ritual castration in Martial and Clemens are undertaken to remedy a misdeed, the goat having eaten of Dionysos' vines and Zeus having raped Demeter. To perform an animal sacrifice or ritual action as a punishment was never part of the Greek cultic tradition, though goats had a bad reputation among the Greeks due to the destruction they caused to the crops and plants, see Chandezon 2003, 149 n. 173, and 413–414; Brulé 1998.

<sup>105</sup> Ziehen 1939, 593; van Straten 1987, 170; Brulé & Touzé 2008, 114–124; Feyel 2003; Feyel 2009, 303–334.

<sup>106</sup> Köse & Tekoğlu 2007; for the reading *tomian*, see Parker 2010, 105, line B 17 and commentary p. 117, see also Naour 1977, 276–278, no. 6. Robert Parker (pers. comm.) suggests that *tomias* may have been a general term for a castrated pig, just as *hiereion* was more or less equated with a sheep. Cf. also van Straten 1995, 181–186, on the presence of castrated sheep and goats in the Attic sacrificial calendars.

<sup>107</sup> Perhaps the view of the male Greek citizen's body as a whole and inviolable entity affected the conception of the uncastrated as the ideal. On the attitude towards the male body as the ideal in art, see Stewart 1997, 7.

<sup>108</sup> On the preference for uncastrated animals also among animal figurines in Greek sanctuaries, especially in the earlier periods, see Schmaltz 1983.

<sup>109</sup> See, for example, London, British Museum E 36 (my *Fig. 9*), *LIMC* VII (1994), 926, s.v. Theseus. no. 34 (J. Neils), Beazley Archive, no. 200974; Florence, Museo Archeologico Etrusco 3920, *CVA Firenze* 3, pl. 96:1 & 3 (Italia 30, tav. 1360), Beazley Archive, no. 203520; Florence, Museo Archeologico Etrusco, 70800, *CVA Firenze* 3, pl. 98:1 (Italia 30, tav. 1362), Beazley Archive, no. 204507; Paris, Louvre G 104, *LIMC* VII (1994), 926, s.v. Theseus. no. 36 (J. Neils), Beazley Archive, no. 203217.

<sup>110</sup> The sacrifice of uncastrated males can in this sense be compared with the offering of pregnant victims, since both actions affected the reproduction of the flocks and resulted in a fertile male or a fertile female being removed. See also the prominently rendered testicles of the calf on the Moschophoros from the Athenian Acropolis, see Hurwit 1999, 103, *fig. 71*.



the gift of the ram, which he then sacrifices to Zeus.<sup>111</sup> The ram enhances the particular position and status of both Odysseus and Zeus within their respective contexts.

The notion of the uncastrated state marking the exceptional can be illustrated by a sacrificial calendar from Mykonos, which dates to around 200 BC.<sup>112</sup> This document is highly interesting because it was inscribed after the island had undergone a synoikism and lists the cultic changes or additions that were made after this major event.<sup>113</sup> It is striking that, of the 14 full-grown victims mentioned, there are five uncastrated males of five different kinds: a ram (which is even specified as *enorches*), a male lamb, a young billy-goat, a boar and a bull.<sup>114</sup> The extraordinary character of this list of sacrifices is also evident from the inclusion of two pregnant victims, both sows, one of which must be pregnant for the first time.<sup>115</sup> Here, we get an impression that the refounded community of Mykonos is marking this new and important phase of its existence by choosing sacrificial victims of the most prestigious and expensive kind.

To conclude, the attitudes towards the castration of animals are not only a question of the agricultural reality, they also reflect religious and cultural notions. For us, the uncastrated or castrated animal brings with it few ritual implications, because cattle, sheep, goats and pigs are perceived by us predominantly as food—meat. From an alimentary point of view, castrated animals may have been more attractive to many cultures in the past, as there would have been more fat and a less offensive taste or smell, especially in relation to pigs. In our contemporary, Western European, affluent society, uncastrated animals would be preferred, especially in relation to beef, since the meat is leaner and this is something we desire; also, today bulls are raised solely for meat production, which was hardly the case in antiquity. Other periods and cultures make

different choices. Leviticus stipulates that no castrated victims were to be sacrificed to Yahweh, as they were considered imperfect.<sup>116</sup> In Muslim countries the preferred meat comes from uncastrated males, mainly due to the prominence of rams in religious contexts.

For the ancient Greeks the perspective was different again, but the cultic sphere still had to negotiate the agricultural reality. The castrated male animals were easily accessible and less costly, and they also gave a fattier and better tasting meat, circumstances that may have been of central concern for the actual participants in the sacrifice.<sup>117</sup> The uncastrated males, on the other hand, were considered the most prestigious victims because they were not only perfect but also rare and expensive, thus marking the sacrifice as exceptional in some sense. However, we should perhaps consider a third option: that the occasional offering of a bull, ram, billy-goat or boar may have been an elegant way of disposing of the old, worn-out males that nobody really wanted to eat.<sup>118</sup>

GUNNEL EKROTH  
Department of Archaeology and Ancient History  
Uppsala University  
Box 626  
SE-751 26 Uppsala  
gunnel.ekroth@antiken.uu.se

<sup>111</sup> Hom. *Od.* 9.548–553. The text underlines the singular position of the ram in the flock, and its prestigious role is evidenced also by Odysseus escaping from the cave by holding onto the ram's fleece, and Polyphemos letting this animal leave the cave as the last one after stroking its back and wishing that it could speak.

<sup>112</sup> *LS* 96.

<sup>113</sup> For the political changes on Mykonos, see Butz 1996, 88–92, esp. n. 64. The inscription must have supplemented another list of sacrifices which has not been found, unfortunately.

<sup>114</sup> *LS* 96, lines 5–6, a most beautiful uncastrated white ram to Poseidon Temenites, lines 8–9, an uncastrated white lamb to Poseidon Phykios, line 17, a full-grown boar to Kore, line 27, a most beautiful young billy-goat to Dionysos Bacheus, and line 30, a bull to Apollo Hekatombios.

<sup>115</sup> *LS* 96, lines 11–12, to Demeter Chloe, and line 16, to Demeter.

<sup>116</sup> Leviticus 22:24–25; for the interpretation of this passage as only concerning victims to be offered at the altar, and not animals in general, see Milgrom 2000, 1879–1880. The zooarchaeological evidence from Iron Age Tel Dan suggests that the wethers were kept for wool production, see Wapnish & Hesse 1991, 33–34.

<sup>117</sup> The frequent emphasis in the ancient sources on the fatness of sacrificial animals as well as of high-quality meat suggests that castration was a manner of improving the meat, see Georgoudi 1990, 292–294; Brulé & Touzé 2008, 118–120.

<sup>118</sup> Columella, *Rust.* 7.6.3 recommends that billy-goats should not be used for breeding after their fifth year, because they were worn out. They may certainly have been used for sacrifices after that.

## Abbreviations

*Andania* = Deshours, N. 2006. *Les mystères d'Andania. Étude d'épigraphie et d'histoire religieuse* (Scripta antiqua, 16), Bordeaux.

*ID* = *Inscriptions de Délos*, Paris 1926–1972.

*LS* = Sokolowski, F. 1969. *Lois sacrées des cités grecques* (École française d'Athènes. Travaux et mémoires, 18), Paris.

*LSA* = Sokolowski, F. 1955. *Lois sacrées de l'Asie Mineure* (École française d'Athènes. Travaux et mémoires, 9), Paris.

*LSS* = Sokolowski, F. 1962. *Lois sacrées des cités grecques. Supplément* (École française d'Athènes. Travaux et mémoires, 11), Paris.

*NGSL* = Lupu, E. 2005. *Greek sacred law. A collection of new documents (NGSL)* (Religions in the Graeco-Roman world, 152), Leiden.

## Bibliography

- Adams, J.N. 1990. 'The forfex of the veterinarius Virilis (Vindolanda inv. no. 86/470) and ancient methods of castrating horses', *Britannia* 21, 267–271.
- Bardel, R. 2002. 'Eunuchizing Agamemnon: Clytemnestra, Agamemnon and maschalismos', in *Eunuchs in antiquity and beyond*, ed. S. Tougher, London, 51–70.
- Bérard, C. 1976. 'ΑΞΙΕ ΤΑΥΠΕ', in *Mélanges d'histoire ancienne et d'archéologie offerts à Paul Collart* (Cahiers d'archéologie romande, 5), Lausanne, 61–73.
- Berndt-Ersöz, S. 2006. 'The Anatolian origin of Attis', in *Pluralismus und Wandel in den Religionen im vorhel-lenistischen Anatolien. Akten des religionsgeschichtlichen Symposiums in Bonn* (19.–20. Mai 2005) (*Alter Orient und Altes Testament*, 337), ed. M. Hutter & S. Hutter-Braunsar, Münster, 9–39.
- Berti, I. 2006. "Now let Earth be my witness and the broad heaven above, and the down flowing water of the Styx..." (Homer, *Ilias* XV, 36-37): Greek oath-rituals', in *Ritual and communication in the Graeco-Roman world* (Kernos supplément, 16), ed. E. Stavriano-poulou, Liège, 181–209.
- Blondé, F., A. Muller, D. Mulliez & F. Poplin 2001 (pr. 2003). 'Οστά και ιεροτελεστίες: μία τρίτοια στη Θάσο Β-Α παρυφές της αγοράς – τομή XXIX', *AEMΘ* 15, 67–73.
- Blondé, F. *et al.* 2003. 'Thasos. B. Abords nord-est de l'agora (Terrain Valma)', *BCH* 127, 488–489.
- Blondé, F., A. Muller, D. Mulliez & F. Poplin 2005. 'Un rituel d'engagement à Thasos : archéologie et textes', *Kernos* 18, 476–479.
- Boessneck, J. & A. von den Driesch 1988. *Knochenabfall von Opfermahlen und Weihgaben aus dem Heraion von Samos (7. Jb. v. Chr.)*, München.
- Borgeaud, Ph. 2004. *Mother of the gods. From Cybele to the Virgin Mary*, Baltimore.
- von Bothmer, D., ed. 1990. *Glories of the past. Ancient art from the Shelby White and Leon Levy collection*, New York.
- Brännäng, E. 1966. *Studies on monozygous cattle twins XVIII* (Lantbrukshögskolans annaler, 32), Uppsala.
- Brännäng, E. 1971. *Effects of castration and ovariectomy on growing cattle*, Stockholm.
- Bremmer, J.N. 2005. 'The sacrifice of pregnant animals', in *Greek sacrificial ritual, Olympian and chthonian. Proceedings of the Sixth International Seminar on Ancient Greek Cult, organized by the Department of Classical archaeology and ancient history, Göteborg University, 25–27 April 1997* (ActaAth-8°, 18), eds. R. Hägg & B. Alroth, Stockholm, 155–163.
- Brouskari, M. 1999. *Το θωράκιο του ναού της Αθηνάς Νίκης* (= *ArchEph* 137, 1998), Athens.
- Brulé, P. 1998. 'Héraklès à l'épreuve de la chevre', in *Le bestiaire d'Héraclès. IIIe rencontre béracléenne* (Kernos supplément, 7), eds. C. Bonnet, C. Jourdain-Annequin & V. Pirenne-Delforge, Liège, 257–283.
- Brulé, P. 2007. *La Grèce d'à côté. Réel et imaginaire en miroir en Grèce antique*, Rennes.
- Brulé, P. & R. Touzé 2008. 'Le hierieion: phusis et psuchè d'un medium', in *Le sacrifice antique. Vestiges, procédures et stratégies* (Histoire), eds. V. Mehl & P. Brulé, Rennes, 111–138.
- Burkert, W. 1983. *Homo Necans. The anthropology of ancient Greek sacrificial ritual and myth*, Berkeley.
- Burkert, W. 1985. *Greek religion. Archaic and Classical*, London.
- Butz, P.A. 1996. 'Prohibitionary inscriptions, ξένοι, and the influence of the early Greek polis', in *The role of religion in the early Greek polis. Proceedings of the Third International Seminar on Ancient Greek Cult, organized by the Swedish Institute at Athens*, 16–18

- October 1992 (ActaAth-8°, 14), ed. R. Hägg, Stockholm, 75–95.
- Casabona, J. 1966. *Recherches sur le vocabulaire des sacrifices en grec des origines à la fin de l'époque classique* (Publications des annales de la faculté des lettres, Aix-en-Provence, N.S., 56), Aix-en-Provence.
- Casadio, G. 2003. 'The failing male god. Emasculation, death and other accidents in the ancient Mediterranean world', *Numen* 50, 231–268.
- Chandezon, Ch. 2003. *L'élevage en Grèce (fin Ve–fin Ier s. a.C.). L'apport des sources épigraphiques* (Scripta antiqua, 5), Bordeaux.
- Chanioris, A. 1996. *Die Verträge zwischen kretischen Poleis in der hellenistischen Zeit* (Heidelberger althistorische Beiträge und epigraphische Studien, 24), Stuttgart.
- Chantraine, P. 1955. 'Les noms de l'agneau en grec: ἀρνίον et ἀρνός', in *Corolla linguistica. Festschrift Ferdinand Sommer zum 80. Geburtstag am 4. Mai 1955 dargestellt von Freunden, Schülern und Kollegen*, ed. H. Krahe, Wiesbaden, 12–19.
- Clinton, K. 2005. 'Pigs in Greek rituals', in *Greek sacrificial ritual, Olympian and chthonian. Proceedings of the Sixth International Seminar on Ancient Greek Cult, organized by the Department of Classical archaeology and ancient history, Göteborg University, 25–27 April 1997* (ActaAth-8°, 18), eds. R. Hägg & B. Alroth, Stockholm, 167–179.
- Cook, A.B. 1925. *Zeus. A study in ancient religion*. Vol. 2. *Zeus god of the dark sky (thunder and lightning)*, Cambridge.
- Dahl, G. & A. Hjort 1976. *Having herds. Pastoral herd growth and household economy* (Stockholm studies in social anthropology, 2), Stockholm.
- Daux, G. 1963. 'La grande démarchie. Un nouveau calendrier sacrificiel d'Attique (Erchia)', *BCH* 87, 603–634.
- De Miro, E. 1968. 'Nuovi contributi sul Pittore di Kleophon', *ArchCl* 20, 238–248.
- Dow, S. 1968. 'Six Athenian sacrificial calendars', *BCH* 92, 170–186.
- Durand, J.-L. 1986. *Sacrifice et labour en Grèce ancienne. Essai d'anthropologie religieuse* (Images à l'appui, 1), Paris & Roma.
- Ekroth, G. 2002. *The sacrificial rituals of Greek hero-cults in the Archaic to the Hellenistic periods* (Kernos supplément, 12), Liège.
- Engelmann, H. & R. Merkelbach 1973. *Die Inschriften von Erythrai und Klazomenai II* (Nr. 201–536) (Inschriften griechischer Städte aus Kleinasien, 2:2), Bonn.
- Faraone, Ch.A. 1993. 'Molten wax, spilt wine and mutilated animals. Sympathetic magic in Near Eastern and early Greek oath ceremonies', *JHS* 113, 60–80.
- Ferguson, W.S. 1938. 'The Salaminioi of Heptaphylai and Sounion', *Hesperia* 7, 1–74.
- Feyel, Ch. 2006. 'La dokimasia des animaux sacrifiés', *RPhil* 80, 33–55.
- Feyel, Ch. 2009. *Dokimasia. La place et le rôle de l'examen préliminaire dans les institutions des cités grecques* (Études anciennes, 36), Paris.
- Fleischer, R. 1983. 'Neues zu kleinasiatischer Kultstauen', *AA*, 81–93.
- Fleischer, R. 1999. 'Neues zum Kultbild der Artemis von Ephesos', in *100 Jahre österreichische Forschungen in Ephesos. Akten des Symposiums, Wien 1995* (Archäologische Forschungen, 1), eds. H. Friesinger & F. Krinzing, Wien, 605–609.
- Forstenpointner, G. & M. Hofer 2001. 'Geschöpfe des Pan – Archäozoologische Befunde zu Faunistik und Haustierhaltung im hellenistischen Arkadien', in *Forschungen in der Peloponnes. Akten des Symposiums anlässlich der Feier "100 Jahre Österreichisches Archäologisches Institut Athen"*, Athen 5.3–7.3 1998 (Österreichischen archäologischen Institut in Wien, Sonderschriften, 38), ed. V. Mitsopoulos-Leon, Wien, 169–179.
- Forstenpointner, G., A. Galik & G.E. Weissengruber 2013. 'The zooarchaeology of cult – perspectives and pitfalls of an experimental approach', in *Bones, behaviour and belief. The zooarchaeological evidence as a source for Greek ritual practice in ancient Greece and beyond* (ActaAth-4°, 55), eds. G. Ekroth & J. Wallensten, Stockholm, 233–242.
- Frandsen, R.D., W. Lee Wilke & A.D. Fails 2009<sup>7</sup>. *Anatomy and physiology of farm animals*, Ames.
- Gebauer, J. 2002. *Pompe und Thysia. Attische Tieropferdarstellungen auf schwarz- und rotfigurigen Vasen* (Eikon, 7), Münster.
- Georgoudi, S. 1988. 'ΤΑΛΑΘΗΝΑ. Sacrifice et consommation de jeunes animaux en Grèce ancienne', in *L'animal dans l'alimentation humaine. Les critères de choix. Actes du colloque international de Liège 26–29*

- novembre 1986 (Anthropozoologica. Second numéro spécial), ed. L. Bodson, Liège, 75–82.
- Georgoudi, S. 1990. *Des chevaux et des bœufs dans le monde Grec. Réalités et représentations animalières à partir des livres XVI et XVII des Géoponiques*, Paris & Athens.
- Graef, B. & E. Langlotz 1925. *Die antiken Vasen von der Akropolis zu Athen*, vol. 1, Berlin.
- Halstead, P. 1996. 'Pastoralism or household herding? Problems of scale and specialization in Early Greek animal husbandry', *WA* 28, 20–42.
- Helck, W. 1984. 'Zur Gestalt der ephesischen Artemis', *AA*, 281–282.
- Herda, A. 2006. *Der Apollon-Delphinios-Kult in Milet und die Neujahrsprozession nach Didyma* (Milesische Forschungen, 4), Mainz.
- Hommel, H. 1978. *Bocksbeutel und Aryballos. Philologischer Beitrag zur Urgeschichte einer Gefäßform* (= *SBHeid* 1978:2), Heidelberg.
- Hurwit, J.M. 1999. *The Athenian Acropolis. History, mythology and archaeology from the Neolithic era to the present*, Cambridge.
- Isager, S. & J.E. Skydsgaard 1992. *Ancient Greek agriculture. An introduction*, London.
- Jameson, M.H. 1965. 'Notes on the sacrificial calendar from Erchia', *BCH* 89, 154–172.
- Jameson, M.H. 1988. 'Sacrifice and animal husbandry in Classical Greece', in *Pastoral economies in Classical antiquity* (PCPhS supplement, 14), ed. C.R. Whittaker, Cambridge, 87–119.
- Jameson, M.H. 1991. 'Sacrifice before battle', in *Hoplites. The Classical Greek battle experience*, ed. V.D. Hanson, London & New York, 197–227.
- Jameson, M.H. 1994. 'The ritual of the Athena Nike parapet', in *Ritual, finance, politics. Athenian democratic accounts presented to David Lewis*, eds. R. Osborne & S. Hornblower, Oxford, 307–324.
- Jameson, M.H., D.R. Jordan & R.D. Kotansky 1993. *A lex sacra from Selinous* (GRBM, 11), Durham.
- Kadletz, E. 1976. *Animal sacrifice in Greek and Roman religion*, PhD thesis, University of Washington, Seattle.
- Killen, J.T. 1964. 'The wool industry of Crete in the Late Bronze Age', *BSA* 59, 1–15.
- Killen, J.T. 1993. 'Records of sheep and goats at Mycenaean Knossos and Pylos', *Bulletin on Sumerian agriculture* 7, 209–218.
- Köse, O. & R. Tekoğlu 2007. 'Money lending in Hellenistic Lycia. The union of copper money', *Adalya* 10, 63–79.
- Lacroix, J.V. 1915. *Animal castration*, Honolulu.
- Lambert, S.D. 1997. 'The Attic genos Salaminioid and the island of Salamis', *ZPE* 119, 85–106.
- Lambert, S.D. 2000. 'The sacrificial calendar of the Marathonian Tetrapolis. A revised text', *ZPE* 130, 43–70.
- Lancellotti, M.G. 2002. *Attis, between myth and history. King, priest, and god* (Religions in the Graeco-Roman world, 149), Leiden.
- Landenius Enegren, H. 2004. 'Animals and men at Knossos – the Linear B evidence', in *PECUS. Man and animal in antiquity. Proceedings of the conference at the Swedish Institute in Rome, September 9–12, 2002* (The Swedish Institute in Rome. Projects and seminars, 1), ed. B. Santillo-Frizell, Roma, 12–19.
- Leguilloux, M. 2003. 'The Delian chora in Classical and Hellenistic times. An island landscape planned for pastoralism', in *Zooarchaeology in Greece. Recent advances* (British school at Athens studies, 9), eds. E. Kotjabopoulou, Y. Hamilakis, P. Halstead, C. Gamble & P. Elefanti, Athens, 251–256.
- Lightfoot, J.L. 2002. 'Sacred eunuchism in the cult of the Syrian Goddess', in *Eunuchs in antiquity and beyond*, ed. S. Tougher, London, 71–86.
- Maass, E. 1925. 'Eunuchos und Verwandtes', *RhM* 74, 432–476.
- Malagardis, N. 1988 (pr. 1991). 'Images du monde rural attique à l'époque archaïque. Travail et société: l'outil et le geste sur les vases', *ArchEph* 127, 95–134.
- McInerney, J. 2010. *Cattle of the sun. Cows and culture in the world of the ancient Greeks*, Princeton.
- Mikalson, J.D. 1977. 'Religion in the Attic demes', *AJP* 98, 424–435.
- Milgrom, J. 2000. *Leviticus 17–22. A new translation with introduction and commentary* (The Anchor Bible), New York.
- Miller, M.Ch. 1997. *Athens and Persia in the fifth century B.C. A study in cultural receptivity*, Cambridge.

- Morris, S.P. 2001. 'The prehistoric background of Artemis Ephesia. A solution to the enigma of her "breasts"?' in *Der Kosmos der Artemis von Ephesos* (Österreichischen archäologischen Institut in Wien, Sonderschriften, 37), ed. U. Muss, Wien, 135–150.
- Morris, S.P. 2008. 'Zur Vorgeschichte des Artemis Ephesia', in *Die Archäologie der ephesischen Artemis. Gestalt und Ritual eines Heligtums*, ed. U. Muss, Wien, 57–62.
- Munn, M. 2006. *The Mother of the gods, Athens, and the tyranny of Asia. A study of sovereignty in ancient religion* (The Joan Palevsky imprint in Classical literature), Berkeley.
- Nanda, S. 1992. *Neither man nor woman. The hijras of India*, Belmont.
- Naour, Ch. 1977. 'Inscriptions de Lycie', *ZPE* 24, 265–290.
- Neils, J. 2001. *The Parthenon frieze*, Cambridge.
- Nock, A.D. 1925–1926. 'Eunuchs in ancient religion', *ArchRW* 23, 25–33 (reprinted in *Essays on religion and the ancient world*, vol. 1, ed. Z. Stewart, Oxford 1972, 7–15).
- Parker, R. 1987. 'Festivals of the Attic demes', in *Gifts to the gods. Proceedings of the Uppsala symposium 1985* (Boreas, 15), eds. T. Linders & G. Nordquist, Uppsala, 137–147.
- Parker, R. 2005. *Polytheism and society at Athens*, Oxford.
- Parker, R. 2010. 'A funerary foundation from Hellenistic Lycia', *Chiron* 40, 103–121.
- Payne, H. 1940. *Perachora. The sanctuaries of Hera Akraia and Limenia. Excavations of the British School of archaeology at Athens 1930–1933 I. Architecture, bronzes, terracottas*, Oxford.
- Perpillou, J.L. 2004. *Essais de lexicographie en grec ancien* (Bibliothèque d'études classique, 42), Louvain.
- Pond, C.M. 1998. *The fats of life*, Cambridge.
- Powell, O. 2003. *Galenos, On the properties of foodstuffs (De alimentorum facultatibus). Introduction, translation, and commentary*, Cambridge.
- Prescendi, F. 2007. *Décrire et comprendre le sacrifice. Les réflexions des Romains sur leur propre religion à partir de la littérature antique* (Potsdamer altertumswissenschaftliche Beiträge, 19), Stuttgart.
- Reese, D.S. & D. Ruscillo 2000. 'The mammal remains', in *Kommos IV. The Greek sanctuary*, part 1, eds. J.W. Shaw & M.C. Shaw, Princeton & Oxford, 416–495.
- Reid, A. 1996. 'Cattle herds and the redistribution of cattle resources', *WA* 28, 43–57.
- Robert, R. & J. Robert 1976. 'Une inscription grecque de Téos en Ionie. L'union de Téos et de Kyrbissos', *JSav*, 153–235.
- Robinson, D.M. 1931. 'Bouzyges and the first plough on a krater by the Painter of the Naples Hephaistos', *AJA* 35, 152–160.
- Roller, L.E. 1999. *In search of god the mother. The cult of Anatolian Cybele*, Berkeley.
- Rosivach, V.J. 1994. *The system of public sacrifice in fourth-century Athens* (American philological association. American Classical studies, 34), Atlanta.
- Rougemont, F. 2006. 'Les porcs dans la documentation mycénienne', in *De la domestication au tabou. Le cas des suidés dans le Proche-Orient ancien* (Travaux de la Maison René-Ginouvès, 1), eds. B. Lion & C. Michel, Paris, 115–129.
- Rousselle, A. 1993. *Porneia. On desire and the body in antiquity* (Family, sexuality and social relations in past times), Cambridge, MA & Oxford.
- Rudhardt, J. 1992<sup>2</sup>. *Notions fondamentales de la pensée religieuse et actes constitutifs du culte dans la Grèce classique*, Paris.
- Rutter, J. 1968. 'The three phases of the taurobolium', *Phoenix* 22, 226–249.
- Rydhmer L. et al. 2006. 'Aggressive and sexual behaviour of growing and finishing pigs reared in groups, without castration', *Acta agriculturae scandinavica, Section A – Animal Science* 56, 109–119.
- Schmaltz, B. 1983. 'Mensch und Tier in der griechischen Antike', in *Zur frühen Mensch-Tier-Symbiose* (Kolloquien zur allgemeinen und vergleichenden Archäologie, 4), München, 99–114.
- Schwertheim, E. 1983. *Die Inschriften von Kyzikos und Umgebung II. Miletupolis 1* (Inschriften griechischer Städte aus Kleinasien, 26), Bonn.
- Segre, M. 1952. *Tituli calymnii* (= *ASAtene* 22–23, 1944–1945), Bergamo.

- Seiterle, G. 1979. 'Artemis, Die grosse Göttin von Ephesos. Eine neue Deutung der "Vielbrüstigkeit" eröffnet einen Zugang zum bisher unbekanntem Kult der Göttin', *AntW* 10:3, 3–16.
- Simon, E. 1985. 'Zeus und Io auf einer Kalpis des Eucharidesmalers', *AA*, 265–280.
- Simon, E. 1988. 'Zur Sandalenlöserin der Nikebalustrade', in *Kanon. Festschrift Ernst Berger zum 60. Geburtstag am 26. Februar 1988 gewidmet* (AntK-BH, 15), ed. M. Schmidt, Basel, 69–73.
- Simon, E. 1997. 'An interpretation of the Nike temple parapet', in *The interpretation of architectural sculpture in Greece and Rome* (Studies in the history of art, 49), ed. D. Buitron-Oliver, Hannover & London, 127–143.
- Slater, W.J., ed. 1986. *Aristophanis Byzantii Fragmenta* (Sammlung griechischer und lateinischer Grammatiker, 6), Berlin & New York.
- Smith, J.Z. 1987. 'The domestication of sacrifice', in *Violent origins: Walter Burkert, René Girard and Jonathan Z. Smith on ritual killing and cultural formation*, ed. R.G. Hamerton-Kelly, Stanford, 191–205.
- Stanzel, M. 1991. *Die Tierreste aus dem Artemis-/Apollon-Heiligtum bei Kalapodi in Bötien/Griechenland*, München.
- Stengel, P. 1910. *Opferbräuche der Griechen*, Leipzig & Berlin.
- Stengel, P. 1924. 'Zu den griechischen Sakralaltertümern', *Hermes* 59, 307–321.
- Stewart, A. 1997. *Art, desire, and the body in ancient Greece*, Cambridge.
- van Straten, F.T. 1987. 'Greek sacrificial representations: Livestock prices and religious mentality', in *Gifts to the gods. Proceedings of the Uppsala symposium 1985* (Boreas, 15), eds. T. Linders & G. Nordquist, Uppsala, 159–170.
- van Straten, F.T. 1995. *Hiera kalá. Images of animal sacrifice in Archaic and Classical Greece* (Religions in the Graeco-Roman world, 127), Leiden.
- Strocka, V.M. 1998. 'Eine weissgrundige Schale des Onesimos', *ÖJb* 67, 63–96.
- Tani, Y. 1989. 'The geographical distribution and function of sheep flock leaders: A cultural aspect of the man–domesticated animal relationship in southwestern Eurasia', in *The walking larder. Patterns of domestication, pastoralism, and predation* (One world archaeology, 2), ed. J. Clutton-Brock, London, 185–199.
- Taylor, G. 2002. *Castration. An abbreviated history of western manhood*, New York.
- Wapnish, P. & B. Hesse 1991. 'Faunal remains from Tel Dan: perspectives on animal production at a village, urban and ritual center', *Archaeozoologia* 4:2, 9–86.
- Warriss, P. 2010. *Meat science. An introductory text*, Wallingford.
- Waywell, G.B. 1993. 'The Ada, Zeus and Idrieus relief from Tegea in the British Museum', in *Sculpture from Arcadia and Laconia. Proceedings of an international conference held at the American School of Classical Studies at Athens, April 10–14, 1992* (Oxbow monograph, 30), eds. O. Palagia & W.D.E. Coulson, Oxford, 79–86.
- Xue, J.L. & G.D. Dial 1997. 'Raising intact male pigs for meal. Detecting and preventing boar taint', *Swine health and production* 5:4, 151–158.
- Zamaratskaia, G. 2004. *Factors involved in the development of boar taint. Influence of breed, age, diet and raising conditions* (Acta universitatis agriculturae Sueciae, Agraria, 444), Uppsala.
- Ziehen, L. 1939. 'Opfer', *RE* XVIII:1, 579–627.