

UNIVERSITY COLLEGE LONDON

**WASTE MANAGEMENT IN ANCIENT GREECE,
FROM THE HOMERIC TO THE CLASSICAL PERIOD:
CONCEPTS AND PRACTICES OF WASTE, DIRT, DISPOSAL
AND RECYCLING**

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ABSTRACT

This doctoral thesis has two purposes. First, it develops a universally applicable model for the analysis of waste disposal and recycling practices. This model synthesises Schiffer's behavioural analysis of the formation processes of the archaeological record with the history, sociology and anthropology of conceptualisations of dirt. Second, it shows how this model may be applied to ancient Greece. In the tradition of material culture studies, it aims to challenge the entrenched oppositions between archaeology, philology, history and sociology, and to interpret archaeological, epigraphic and literary sources within an integrated theoretical-methodological framework. The model is used to explore various aspects of ancient Greek waste management. It analyses the interdependence of ancient Greek waste management practices with changing concepts of dirt, pollution and cleanliness in the context of the development of the Greek *polis*. It also examines the universal analytical categories of waste disposal and recycling practices within diverse social and historical situations and settings with a view to analysing the cultural categories of these practices. Practices of disposal and recycling of solid and liquid waste are analysed in various contexts, including sanctuaries, settlements, *agorai*, and cemeteries, with respect to depositional processes, diversion rate and range of recycling practices. Materials studied include organic waste, potsherds, ostraka, building material, slaughter and consumption waste, funerary implements, votive offerings, architectural features and water. These examples allow the analysis - within the limits of a study using data in an exemplificatory rather than a statistically valid way - of the influence of the concepts of the sacred and the profane on the treatment of waste in ancient Greece and the degrees to which economic, political, social or symbolic aspects of recycling practices were stressed in different contexts.

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PREFACE

The idea of studying systematically processes of waste disposal and recycling in ancient Greece was born when I was writing my M.A. thesis on 'The Perserschutt of the Athenian Akropolis as a *terminus ante quem*'. My initial explorations on the Persian debris were intended merely to find out whether Dorpfeld's concept of *Perserschutt* - the material which had been destroyed by the Persian in 480 and 479 B.C. at the Athenian Akropolis and which was subsequently cleared away and being use for various purposes by the Athenians - was applicable to the strata of the southern, the south-eastern and the northern side of the Athenian Akropolis and, thus, whether the Persian debris of the Akropolis of Athens provides indeed a *terminus ante quem* for the finds recovered from this site. While I had committed myself to explore methods for analysing *Persian* destruction with a view to throw new light on the chronology of statues of the archaic to early classical period, I found myself becoming more and more fascinated by the ways in which the *Athenians* dealt with the debris left by the Persians. More specifically, I became increasingly aware of the great variety in which destruction debris was disposed of and recycled. Living close to the so-called *Kreuzberg* in Berlin, an artificial hill made of destruction debris of the Second World War, made me realise during one of my walks through the park that the inhabitants of Athens after 479 B.C. and Berlin after 1945 A.D. had developed similar strategies to cope with destruction debris: destruction debris was cleared away on a large and small scale, but it was also used for leveling areas.¹ Similarly, intact building material was recycled by the Athenians and the so-called *Trümmerfrauen* in Berlin and some remains were left over as War memorials. This comparison lead to the broader set of questions: How did other Greek *poleis* deal with Persian debris or, more generally, with destruction debris? Did there exist differences between the context of the *agora* and the sanctuary, as it was the case in Athens? When were votives considered waste? How did ancient Greeks handle their rubbish? Are there cross-cultural strategies of dealing with (destruction) debris? For my M.A. thesis, I had to ban the comparative data in my footnotes, but when I had successfully passed my dissertation, I started doing more in depth research on the treatment of waste in ancient Greece, the results of which I present in this thesis

Berlin 1952.

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I have received help from many quarters. It is a pleasure to have an opportunity to thank the British Academy, the German Academic Exchange Service and the British Charitable Foundation for Women for financial support. Without their help I would not have been able to study archaeological and anthropological theory at University College London and to develop an explicit theoretical framework for my thesis. I am also indebted to the Institute of Archaeology which granted me a scholarship for writing up my thesis. A travel grant from the Graduate School and the Institute of Archaeology of University College London as well as scholarships from the Onassis Foundation and the Greek State Scholarship Foundation (I.K.Y.) enabled me to study primary materials in the museums and *apothekai* in Greece from September to October 1998 and from September 1999 to January 2000.

Most of all I am grateful to all those who gave generously of their time to give me intellectual stimulus in constructive criticism, to pass on useful references and to offer encouragement. I thank Prof. W.-D. Heilmeyer for standing godfather to my early Ph.D. project and for giving me the opportunity of giving presentations at an early stage of my work at the Colloquium for M.A. students and Ph.D. students at Free University, Berlin. My thesis owes his concrete and practical approach a great deal. I am indebted to my supervisors Dr. J. J. Tanner, Prof. Dr. C. Tilley and Dr. T. Whitelaw for reading and commenting, from different points of view, on the whole text in several versions. I want to thank Prof. H. Kyrieleis for allowing me to read unpublished faunal reports from Olympia. I am also grateful to K. Popp for drawing my attention to legal definitions of waste and recycling as well as leading cases of environmental law. None of them are in any way accountable for the inevitable shortcomings and mistakes which are embedded in this work.

I. INTRODUCTION

Ancient Greek processes of waste disposal and recycling have not yet been analysed systematically by modern waste specialists. This is despite constant references by them to waste management practices as ancient and universal activities.¹ Although the study of ancient waste management systems have become quite trendy in archaeological research in Great Britain and the United States of America, it has been a neglected area of study within Greek archaeology.² The study of the treatment of waste in ancient Greece may be a more dirty venture than the analysis of stylistic changes across time and space.³ However, the analysis of waste management practices may shed light on fundamental aspects of a culture, such as consumption habits, the nature of the diet, the wastage of food, and ethnic, social, gender and age specific differentials within the composition of the waste stream. This is exemplified by Rathje and Murphy's (1992) popular study on modern garbage disposal on Staten Island in New York City. Probably, the most sensational insight to be gained by the Garbage Project for American society from this best-seller was the fact that something perceived as useless and dirty as waste could play a crucial role in convicting criminals and by proving wrong people's oral statements on their consumption patterns.⁴

Uncovering unknown and fascinating aspects of a culture by means of a fresh look at published and well-known archaeological, literary and epigraphic evidence is at the heart of this doctoral thesis. It is the aim of this study to shed new light on ancient Greek culture, from the Homeric to the classical period, by a systematic analysis of waste, its disposal and recycling. I intend to illuminate practical aspects of ancient Greek waste management such as its organisation and infrastructure, the degree of its institutionalisation, the composition of the waste stream and the recycling rate. I will also investigate waste disposal legislation and court documents dealing with private quarrels on illegal waste disposal and recycling practices. I shall also discuss waste management actions within the parameters of time, socio-political changes and space. Moreover, I will focus on linguistic and conceptual questions, investigating to what extent terms comparable to our modern concepts of waste, waste disposal and recycling existed in ancient Greece. Lastly, the non-empirical dimension of behaviour (consisting of rules, dispositional factors and social relationships) shall be

¹*Old/universal*: e.g. Erbel 1982, 17; Htun 1982, 40; Henstock 1988, 3; Arlt 1989, 16; Rathje & Murphy 1992, 192. *Recycling as a waste management strategy*: e.g. Smith 1976, IX; Rathje & Murphy 1992, 204; Ruiz 1993, 11; Wate 1995, 10. *Contra*: Holmes 1982, 25-6. *Brief historical overviews*: Gunnerson 1973 Ruiz 1993.

²*America*: Schiffer 1972; Rathje 1974; 1990, 1996; Lynch 1990. *Great Britain*: Thompson 1979 (Europe); Moore 1986 (Africa).

³For the classification of studies on organic waste as dirty cf. Wikander 1998, 447.

⁴Rathje & Murphy 1992, 12. Cf. Deagan 1982, 171. The idea that inaccuracies in oral or written statements of persons can be detected and corrected by the information gained from the archaeological record and in particular from their household waste is only valid in an ideal setting, that is to say when (1) the given society is a capitalist *Ex und Hopp*-society, (2) everything is bought packed, (3) packing material is not left in the shops, and (4) the entire household waste is disposed of and not brought to collecting points.

explored by investigating the meanings and attitudes towards waste management activities in different social situations, realms and contexts.

The purpose of this first chapter is twofold. Firstly, I give an overview of studies dealing with waste disposal and/or recycling practices in ancient Greece both on the level of mere identification and on the level of a theoretical-methodological approach (I.1). This history of research provides background information and hypotheses, which can eventually be compared with the results of my analysis which contrasts different material culture categories and contexts, (such as sanctuaries, settlements, *agorai* and cemeteries,) and takes into account changes over time. Secondly, I aim to develop a theoretical-methodological framework within which I will be able to examine universal aspects of waste management, as well as cross-cultural, contextual variations and temporal changes (cf. Hubert 1994, 11). Such a framework allowing for the systematic discussion of waste management has never before been provided within Greek archaeology.

I.1 History of Research within the field of Greek Archaeology

I.1.1 Identification and evaluation of waste management practices

A study of ancient Greek waste management, which conceptualises practices of waste disposal and recycling practices as complementary practices, has not yet been published. There are, however, a number of publications dealing with, or touching upon either of these waste management practices. Yet, in comparison with other archaeological disciplines, in particular Roman archaeology, the study of waste disposal and recycling practices is still in its infancy in Greek archaeology.⁵ Most studies have aimed to identify practices of ancient Greek waste disposal and recycling of a specific material culture category and limited their research to specific places and times, as will be discussed below. A comprehensive study on either waste management strategy, analysing more than one material culture category with respect to changes over time or regional variability is still to be written.

In the following paragraphs, I will discuss the treatises with respect to the kind of waste they deal with, starting with disposal practices. In the section on recycling processes, I will also give an overview of the motivations and circumstances which modern scholars attribute to the practice of recycling.

⁵*Roman archaeology*: Bergemann & Zanker 1981; Reimers 1991; Neudecker 1994; Freyer-Schauenberg 1999; Reinsberg 1999; Ginister in press; Gardner in preparation. Cf. German Bibliography/Dyabola s.v. reuse. *Egyptian Archaeology*: e.g. Dixon 1972a; b; Hoffman 1974. *Prehistory*: Cavanagh & Mee 1978; Hill 1992; 1995; 1996; Whitelaw 1991; Paulsen 1996; Cullen 1999. Thomas & Marcello 1998-9; Artzy in press. *Near Eastern Archaeology*: e.g. Gnivecki 1987; Hemker 1993; Rogers & Widdowson 1996. *Middle-Ages*: Poeschke 1996a; Brown 1999. *Ethnology*: Kidder, cited in Lynch 1990, 79.

Disposal practices

The 'best' documented disposal practices in ancient Greece are the discard of waste and excess water. This information has been incorporated in works on water management and drainage systems (e.g. Peppas-Papaioannou 1990; Crouch 1993; Tölle 1994) or in historical studies dealing with the discharge and disposal of human bodily waste in Europe from ancient to modern times (Illi 1987, 165-71). Waste water systems in sanctuaries have received some attention from philologists, dealing with the corpus of the Sacred laws.⁶ While Lang (1996, 121-5) and Reber (1998, 142-7) briefly discussed the development of urban drainage systems in the context of settlement studies, Owens (1991, 168) touched upon them in his treatment of ancient Greek cities. Surprisingly, none of the publications on the site of Olynthos, where parts of a drainage system as well as a range of toilets and urinals were found, included a section on the material culture of waste water or the discharge and disposal of human bodily wastes.

Similar to waste and excess water, organic waste, in particular human bodily wastes, have rarely been the subject of a comprehensive study.⁷ Notable exceptions are the articles by Vatin (1976), Owens (1983), and Ault (1993; 1994a; b, 1999). Whereas Ault discussed the collection and disposal facilities of bodily wastes in the rural *polis* Halieis, Owens primarily dealt with the method of disposal during the fifth and fourth century B.C. Athens and the collection and disposal service provided by the so-called *koprologoi*, dung-gatherers. Vatin compared disposal practices of dung and toilet systems of different *poleis*. Apart from this, the disposal of organic waste has only been mentioned in the context of the discussion of other, larger issues. The prohibitions regulating the disposal of waste in sanctuaries and *temenoi* were addressed in a few paragraphs in the treatises on *Leges sacrae* by Wächter (1910) and more recently by Dillon (1997). Hughes (1996, esp. 162-5, 193) addressed the issues of sewage disposal in his book on environmental problems in the ancient Greek world, while Neudecker (1994, esp. 14-6) briefly addressed these in his study on Roman luxury latrines. Issues of sanitation, cleanliness and the occurrence of vermin were discussed in Zinsser's book on diseases and epidemics in antiquity and in ancient Greece in particular.⁸

Besides water and organic waste, other material culture categories such as potsherds or manufacturing waste have not been discussed so far at any length. As far as votive offerings and sacrificial waste are concerned, they tend - unjustifiably, as I will argue - not to have

⁶e.g. Wycherley 1960, 65, Sokolowski 1962, no. 4; Dillon 1997, 126. *Contra*: Peppas-Papaioannou 1990.

⁷The topic of bodily wastes in the Roman culture is far more fashionable (cf. Koloski-Ostrow 2000, 4-5 with n. 4).

⁸Zinsser 1985, esp. 9, 116 n. 5, 170, 184-7, 189, 195, 222, 284. For a similar approach for ancient Egypt cf. Dixon 1972a; b and the Roman world cf. Scobie 1986, esp. 399.

been categorised by modern scholars as disposable, which I will partly incorporate into my study to draw a fuller picture of ancient Greek disposal practices.

Recycling practices

Some scholars merely treated recycling practices as a means to answer more general questions. For example, Lambrinoudakis (1986) established a chronology of Athens after the Persian Wars on the basis of recycled building material used in the rebuilding programme of Athens, and Lipka (1998) drew attention to the fact that the Hekatompedon inscriptions were written on reused building material only to set an end to the controversy over the date of these inscriptions. However, the majority of studies dealing with recycling practices can be called studies of recycling practices, because their main focus were ancient Greek recycling strategies. The emancipation of recycling as a research topic cannot only be deduced from the number of studies devoted to this subject, but also from the fact that literature on reuse (*Wiederverwendung*) has been listed separately in the German bibliography/Dyabola since 1990. In fact, the literature on reuse falls into two categories: the fate of ancient monuments, and ancient reworking and repair. The former regards recycling as inter cultural recycling and (nostalgic) revival of iconographic motives, aesthetics and forms - like the phenomenon of archaisms - and is, therefore, of no interest for a study of ancient Greek waste management practices.⁹ The latter comes closer to the understanding and interpretation of reuse as a waste management strategy, as reuse is conceptualised as a strategy of making use of something already existing. It needs, however, to be stressed that the German bibliography does not sharply distinguish between reclaiming an object or substance from the waste stream in order to reuse it (*Wiederverwendung*) and using an artefact or ecofact (still in use) in a new way (*Weiterverwendung*). In particular, reuse in the sense of a waste management strategy has become quite a trendy research topic. This can be deduced from the wide range of items and materials discussed within this framework. Waste matter considered to date includes building material (Tschira 1940; Beckel 1967-8, 337; Höpfner 1987), grave *stelai* (Fittschen 1990; Nemes 1991; Graeve 2000), stone sculptures (Wegner 1989; Muss & Kasper 1990), metal votive offerings (e.g. Rouse 1902, 2, 343-4; Linders 1987; 1989-90; 1992; 1997), organic waste (e.g. Alcock *et al* 1994) and p tsherds e.g. Lang 1990).

Since Rouse (1902) and Linders (1989-90; 1992; 1996; 1997) dealt with recycling practices of votive offerings more systematically, special attention should be drawn to their studies. Rouse aimed at developing classifications of votives which would affect their treatment. He pointed out that metal votives tended to be recycled, whereas small and

⁹*Inter-cultural*: cf. German bibliography/Dyabola, add the publications by Martin 1995; Potter 1995; Bintliff 1997; Stichel 1997. *Revival*: e.g. Robinson 1989; Scobie 1990; Hammer-Schenk 1992; Himmelmann 1996d. *Archaism* Brouskari 1989; Fullerton 1990; Brahm 1994.

valueless votives would not undergo the recycling processes. Linders, in contrast, focused solely on the recycling of metal votives and, on the basis of literary and epigraphic sources, the organisation and procedure of melting down and creating new metal votives in Greek sanctuaries. Linders (1997) also examined in more detail the interrelation of the meaning of recycling practices with the conceptualisation of votives in Greek society, ranging from sacred objects to a mere gold reserve.

Judging from the title of Blanck's Ph.D. thesis, *Wiederverwendung alter Statuen als Ehrendenkmäler bei Griechen und Römern* (1969), his research seems to be of immediate relevance for the study of Greek waste management. This is, however, only partly the case, as Blanck claimed that the reuse of statues was not a common practice in pre-Hellenistic Greece, which is the my period of interest in this project. The contribution of his thesis for the Greek realm lies rather in having drawn attention to the existence of different kinds of recycling practices, such as changing heads of statues, erasing inscriptions and adding new inscriptions to the original one.

Scholars have evaluated ancient Greek recycling activities differently. Willemsen (1963), Blanck (1969, 95-7), Thompson (1981), Schmaltz (1979, 16 n 11) and Beckel (1967-8, 337) for example, explained the recycling of statues, destruction debris, and grave *stelai* as economic constraints and temporary solutions. Some scholars even went as far as linking recycling practices of statues to a lack of creativity (e.g. Winckelmann 1764, 345-7). Donderer (1991-2), in contrast, was more neutral in his discussion of recycling practices of metal statues in the Greek and Roman world. He pointed out that political and ideological interests may have been the driving forces behind deliberate recycling strategies. In a similar vein, Buchert (in press) discussed the reuse of building material in terms of symbolic depositions and within a framework of maintaining heritage respectively.

In this context of different evaluations of recycling practices, Linders' (1987, 1989-90, 1992, 1997) numerous studies on recycling practices of metal votive offerings in ancient Greek sanctuaries, based on literary and epigraphic evidence, are crucial. Her work suggests that attitudes towards metal recycling depended on the social situation in which it took place, the group of people carrying it out, and its purpose. While recycling of old metal objects for the creation of newer and bigger ones was socially accepted, the melting down of treasuries by enemies to pay soldiers was regarded a disgrace.

To conclude, this overview makes evident that, on the level of the identification and evaluation of practices of disposal and recycling, my study of ancient Greek waste management practices, from the Homeric to the classical period, can use data from a range

of single studies. Particularly well-documented are disposal practices of waste water and organic substances in settlements, whereas waste management strategies of sacrificial waste and votive offerings have been neglected areas of study. The issues of attitudes towards, and evaluation of, ancient Greek waste management practices in general, and disposal practices and waste in particular, need to be addressed in much more detail as is done in this thesis.

I.1.2 Theoretical-methodological framework

Theoretical-methodological approaches have had a major influence and have gradually come to dominate some domains of archaeology, such as prehistory, in particular in Great Britain, but also elsewhere. The general trend towards theoretically oriented research appears to have passed by the field of Greek archaeology.¹⁰ Surprisingly, this negligence does not only include post-processual approaches, but also formation theory, which focuses on the primary sources of archaeological knowledge, namely archaeological objects, which are conceptualised as the output or waste of ancient cultures and attempts to gain an understanding of how human and natural processes formed the archaeological record (e.g. Nolte 1991). There are, however, a few exceptions to this negligence (Alcock *et al* 1994; Hansen 1996, 261; Bintliff *et al* 1999). In Greek archaeology, formation theory still tends to be ignored in the process of gaining knowledge from the archaeological record on the spatial organisation of working processes and the functions of rooms (Reinholdt 1992; Photos-Jones & Jones 1994, 327-58), the location of settlements or workshops (Rotroff & Oakley 1992, 35), the existence of cults (Wetzel 1996, 36), technical details of manufacturing processes (Blümel 1969), the kind of damage that may have befallen a building and archaeological items (Shear 1993, 386), diet and diseases (Brothwell 1972, 353; Rotroff & Oakley 1992, 48), and butchery practices.

To what extent the consideration of transformation processes, and processes of recycling in the sense of material recovery, can change our understanding of the past has been demonstrated by Vickers (1990). He argued against the general assumption that ceramic vessels were more highly valued than metal vessels in antiquity by criticising the common method of evaluating the significance of objects on the basis of their abundance, rarity or absence in the archaeological record. More specifically, he argued that the under-representation of metal vases in the archaeological record is due to the fact that very often they were melted down later in antiquity and as such they do not reflect a cultural ranking of materials (painted ceramics over metal).

¹ e.g. Snodgrass 1985; 1987; Boardman 1995, 1 n. 1; Bernbeck 1997, 15-25.

As with formation theory, the fundamental debate about the significance of finds and find assemblages - better known under the heading 'Ritual deposits or Rubbish' - which is currently taking place in Great Britain, has not affected Greek archaeology, even though it has gained some attention among Roman archaeologists (e.g. Rudling 1997). Consequently, it is reasonable to argue that Greek archaeology has not yet developed a methodological approach for the evaluation of archaeological sources comparable to source criticism of literary evidence in history. The recognition of the general need for a consideration of formation processes does not mean their acceptance as theories, but rather as middle-range concepts in a broad sense, that is as a first step in the reconstruction of the archaeological evidence which forms the basis for further analysis (cf. I.2.1).

Although to date there has been virtually no discussion of waste management with any solid methodological or theoretical grounding, two studies are worth discussing in more detail, as they at least made an attempt to base their research on more theoretical-methodological approaches. A study by Illi (1987) deals with the development of the disposal of bodily wastes in Europe from prehistory to modern times, while the work of Crouch (1993) presents evidence of water management in ancient Greece, from the 8th to the 1st century B.C. Illi discussed changing disposal habits and disposal facilities for organic waste with reference to Elias' (1992a; b) *Civilising Process*. However, instead of applying either a theoretical model to the data in order to interpret and explain changes across time as an evolutionary process, or to study the history of the erection of disposal facilities by *polis* authorities and disposal regulations as instruments of social control, he gives a descriptive account of the data and mentions Elias occasionally (e.g. Illi 1987, 60, 66-8). Just how much this represents a lost opportunity becomes clear when looking at two other publications: Corbin's (1994) study on the mechanisms behind and social processes leading to sanitary reforms in Europe, and Vigarello's (1988) book on changing concepts of, and attitudes towards, bodily dirt in historical Europe.

Crouch aimed primarily at documenting drainage systems in Greek *poleis* across time and space, including Greek colonies. One of her research objectives was to link water-management to processes of urbanisation (Crouch 1993, VIII, 4). However, the analysis of the interface between social organisation and the architectural manifestation of waste management does not go beyond superficial statements, for example, that the process of urbanisation went hand in hand with the construction of drainage systems (Crouch 1993, 19, 107, 178). Thus, a study of the role of waste water systems and within the development of the Greek *polis* remains to be done.

To conclude, a study of ancient Greek waste management must conceptualise the practices of discarding and recycling as complementary activities. It has to combine the

above discussed publications with epigraphical, literary and archaeological data, which hitherto have not been discussed with reference to waste management strategies. This will allow for a fuller picture of practices of discarding and recycling across time and space, and for a new understanding of the cultural and social significance of these activities and practices. Since Classical Archaeology at present does not provide the conceptual basis required for a systematic analysis of waste management strategies in ancient Greece, such an explicit theoretical-methodological framework will be developed in this thesis. This framework will be based upon theoretical and methodological frameworks within which waste disposal and/or recycling practices have been examined in anthropological, sociological, archaeological and historical studies (I.2). The application range of this model is discussed in section I.3, where it will also be shown how it is used in this study to explore integrated waste management practices in ancient Greece, from the Homeric to the classical period. Finally, a brief overview over the organisation of this thesis will be presented (I.4).

I.2 An Integrated Model

Although people all over the world discard and recycle objects, architectural structures and substances, there is no such thing as *the* waste management system that can be found all over the world.¹¹ The social organisation of practices of waste-disposal, reclamation and reprocessing, as well as the composition of the waste stream, may differ a great deal between, for instance, various societies, and undergo changes over time. While, for example, in the contemporary societies of Western Europe and the United States, waste collection and disposal services are the concerns of the local municipalities and recycling is part of a national waste disposal plan, it is not long ago that disposal and recycling practices were the responsibility of every individual or family, as in Europe immediately after the end of the Second World War. As anthropological and sociological studies show, waste management systems may also vary within a given society. More specifically, discard and recycling practices may depend on the sex of a person or the class or caste to which a person belongs. For example, items discarded as worthless by one person, may not be regarded as waste by beggars and scavengers, who keep the 'gold in garbage myth' alive by efficiently reclaiming materials from the waste stream (cf. Sicular 1992). Waste management systems may also differ from one social context to another. The same material or item may be thrown away or recycled in one context, such as a settlement, and not in another, such as a sanctuary or cemetery.

¹¹In this study 'objects' will be used synonymously with 'items and artefacts', whereas 'substance' is synonymous with 'material'. Schiffer's category of 'ecofacts' comprising bones, shells etc. is not necessarily synonymous with substance - as Schiffer assumed - because their cultural classification may vary from society to society and cultural context to cultural context. Shells, for instance, may be classified as substances normally, but as cultural objects, when dedicated to a god.

Waste management systems may also differ with respect to the kind of different discard and recycling practices they comprise, such as land filling, incineration, material reprocessing or reuse, which reflect the needs and problems of a society, a social group or a specific location. In addition, discarding and recycling practices vary with respect to the purpose they fulfil. Discarding activities may not only have been carried out with the intention to get rid of items, but also, when waste was targeted at a specific person, to assault that person. Likewise, recycling practices may be regarded as a survival-strategy in, e.g., post-war societies (e.g. Berlin 1952), or as a creative process (e.g. Greenfield 1986). In countries which face a decreasing availability of land for landfills near population centres and the depletion of natural resources, recycling is conceived of as a strategy to solve environmental problems and to recover and utilise 'natural resources out of place'.¹²

I aim to develop a theoretical-methodological model, which is applicable not only to ancient Greek society, but also to any other. This model needs to be able to shed light on differences between waste management systems. More specifically, it has to be sensitive to differences in the organisation of waste management and the range of objects which were rejected and later reclaimed and recycled by individuals or by a society. Furthermore, it ought to take into account variations in the patterning of the data across different spatial, social and cultural contexts. Lastly, the approach should also allow for exploring the relationships of recycling and disposal behaviour with processes of social, political and cultural change over time.

1.2.1 Towards an integrated model

In the following paragraphs, I will analyse a representative selection of influential anthropological, sociological and archaeological theories about practices of waste disposal and recycling with the intention to develop a new, integrated model. My discussion focuses on an explicitly theoretical level and considers ethnographic data only when theories are embedded in particular ethnographic studies.

Formation processes and the New Archaeology

The conceptualisation of waste management strategies as formation processes is normally linked to behavioural archaeology in general, and Schiffer (1987) in particular. However, concerns with formation processes have been noticeable in archaeology almost since it began as a discipline, albeit not on the level of an explicit theoretical-methodological framework, but rather on the level of source-criticism.¹³ In the more recent literature on

¹²Quotation: Erbel 1982, 17. *Solution for the First World*: Smith 1976, IX; Rathje & Murphy 1992, 204, Lund 1993, esp. XIII-XVI; Ruiz 1993, 1.1; Waite 1995, 10. *Contra*: e.g. Holmes 1982, 25. *Solution for developing countries*: e.g. Thomé-Kozmiensky 1982; Polprasert 1989.

¹³*Historical overview*: Sommer 1991, 54-9.

formation theory, processes of discard and recycling are conceived of as human processes which, together with non-human processes such as erosion, weathering or scavenging animals, formed the archaeological record in the past and modified it after its formation.¹⁴ Dumping of waste and reuse, for example, are regarded as a depositional factor, whereas reclaiming processes such as excavations and museum displays are seen as human post-depositional effects by Clarke (1973, 16), and understood as A-S transforms (Archaeological context-Systemic context) by Schiffer (1987, 99, 120).

Eggers and Ascher

As Sommer (1991, 54-5) has already pointed out, the work of Eggers (1986) and Ascher (1977) are worth highlighting, since these two pioneering German studies anticipated three important aspects of Schiffer's formation theory, but tend to be disregarded even in the recent British and American literature on formation processes (e.g. Joyce & Johannessen 1993, 138). Firstly, both contributed to the identification and codification of the processes that structure the archaeological record by focusing on the life-history of objects and developing a three-phase model, through which every artefact passes. Whereas Eggers (1986, 258-62) distinguished 'living matter', (which is still in active use,) 'dying matter', (which is used for purposes other than its original and is still kept above the surface,) and 'dead matter', (which is uncovered by archaeologists), Ascher (1977, 230) named his phases 'inhabited', 'ghost', and 'archaeological'. In Eggers' (1986, 259-61) model, factors which affect the speed in which a dying thing perishes and becomes archaeologically traceable waste include the material it is made of and its decay period, but also socio-cultural factors, such as the social status of the owner and the realm in which the object was kept, such as private or public. Secondly, in contrast to Binford (1964), Ascher and Eggers addressed the complexity of waste movements and stressed that there is no direct relationship between a past behavioural system and its archaeological remains.¹⁵ Factors influencing whether or not items enter the archaeological record, or the way the archaeological record is modified, include their durability, their size, their socially constructed recycling value, and the use of landscape in modern times. Lastly, Eggers (1986, 263, 265-7) stated that depositional processes are regulated by convention, although he did not go as far as Schiffer, and formulated universal behavioural laws for spatial disposal patterns of waste. Similarly,

¹⁴Schiffer (1972, 156; 1976, 15-6. Cf. Butzer 1982, 120) distinguishes between processes which have been affected by culture (anthropic) and those which have *not* been affected by culture (noncultural or natural transformations) (n-transforms). Consequently, Schiffer's n-transforms comprise both environmental/geomorphic processes *and* animal behaviour (cf. Ascher 1977; Bar-Yosef's (1993, 16) term 'non-human biological processes') and cannot be reduced to mere environmental factors, as Hivernel & Hodder (1984, 97) and Darvill 1987, 154 did.

¹⁵This discussion is better known as the Pompeii Premise in English-speaking countries (Binford 1964, 425; 1981b; 1987; Watson *et al* 1971, 22; Schiffer 1985) and the *Dornröschenschlaf*-principle in German-speaking countries (Sommer 1991, 62-4). Ironically, neither Schiffer nor Binford realised that people had time to remove some of their belongings from Pompeii before the city was covered with ash and that scavengers dug for the buried city in order to unearth treasures (cf. Strauss 1993, 2. *Contra*: Bar-Yosef 1993, 14 5).

Ascher's statement that ethnoarchaeological studies of depositional processes may help to reconstruct past depositional processes is not far removed from Binford's argument in favour of a middle-range theory.¹⁶

Schiffer

In the late 1970s and 1980s, American processualists based middle-range theory - that is the logic which links material data and interpretation - upon the study of formation processes of the archaeological record. The impact on practical archaeology was so enormous that some regard behavioural archaeology as the 'epitome' of middle-range theory.¹⁷ In particular the works of Schiffer and in some measure Reid, Clarke, and Binford, represent an attempt to establish a methodological framework for this kind of archaeological research.¹⁸ Schiffer was the first archaeologist who attempted to cast the concept of the archaeological record into a more rigorous form, so that it could stand as a scientific model, which uses law-like generalisations to define the relationships between human behaviour and material culture (correlates) and cultural and natural formation processes (c- and n-transforms). Schiffer's transformational approach was recently applied by Rathje, the founder of the discipline of 'garbology', to the archaeological study of the Fresh Kills landfill, on Staten Island, in New York City, and the so-called 'Garbage Project'.¹⁹ I will first critically discuss Schiffer's transformation approach and then the philosophical-theoretical basis of Behavioural and New archaeology.

The 'life-story' or 'biography' of any element takes place in two 'contexts', which may be conceptualised as subsequent phases (pl. 1.1-2).²⁰ He distinguishes between the 'systemic context' of an object and its 'archaeological context'. The 'systemic context' corresponds to an object's place in an ongoing society, while the archaeological context corresponds to the phase after the object has ceased to be part of an 'ongoing society' (Schiffer 1987, 3). In contrast to Binford's more holistic approach, Schiffer sought to split up cultural systems (systemic context) into a set of distinct, yet closely linked activities, which form 'stages' and 'processes' (cf. Katz & Spring 1993, fig. 34.1). Schiffer (1972, 158) traces the life-history of durable elements through processes of procurement, manufacture, use, maintenance, and discard (pl. 1.1), and that of consumable elements through processes of procurement, preparation, consumption and discard (pl. 1.2), to the final position of all elements as refuse (archaeological context). In addition to these basic processes of the systemic context, there are a variety of other processes and activities, such as transport, storage and reuse, as well as

¹⁶Ascher 1977, 235; Binford 1977, 7. Cf. Sommer 1991, 55.

¹⁷Goodyear 1977, 670. *Middle-range theory*: e.g. Raab & Goodyear 1984, Grayson 1986; Bembeck 1997, 65-70. *Applicability to the practical aspects of archaeology in contrast to post-processual archaeology*: Hodder 1991a, esp. 8.

¹⁸e.g. Schiffer 1972; 1976; 1995; Clarke 1973; Binford 1977; 1978; 1981a; Reid 1985; Schiffer & Miller 1999.

¹⁹*Garbology*: Rathje 1990; Rathje & Murphy 1992, 14, 171.

²⁰*Model*: Schiffer 1972, 157-61; 1976, 46-8; 1987; 1995; 1996; 1999.

non-human transformations (n-transforms; Schiffer 1987, 22). The variety and the combination of these additional processes and activities contribute to the complexity of object movements in the systemic context and to the variability of refuse histories, in particular in intensively used sites such as settlements.

As with maintenance processes, reuse processes affect the routing of elements, as they let elements pass once more through processes or stages through which they have already passed. However, in contrast to maintenance processes, Schiffer (1972, 158) did not regard reuse as a basic process. This is not logical for two reasons. Maintenance occurs only in connection with durable elements, whereas reuse processes may occur for all elements. More importantly, maintenance processes such as repair are as optional for durable elements as reuse processes. Throw-away objects, for example, would not normally be rerouted to pass through the stage of use for a second time. Consequently, all processes that shift elements back to an earlier stage would need to be called optional rather than basic processes in a coherent model (cf. I.2.2).

Schiffer distinguished a variety of reuse processes. Within the systemic context, Schiffer (1976, 27-41, esp. 37-40; 1977, 31-3) distinguished two reuse processes, which both occur after the completion of the use-life and at the transition to the discard phase. Whereas lateral cycling occurs when an element is used once more without alterations, either in the same or another way, recycling occurs when elements are reworked or when the material is reprocessed. In 1987, Schiffer (1987, 99-120) enriched his conceptualisation of reuse processes with the idea of an A-S reuse process; reuse processes which shift elements back from the archaeological context to the systemic, were called 'reclamation' by Schiffer. The ongoing society into which a refuse element is reincorporated is presumably not the society in the past, in which it was originally made and originally used, but our modern society (cf. Carman 1996, 27). Schiffer's model does not consider that some ongoing societies use discarded elements for the same or for other purposes than their original purpose and as a secondary material for the manufacture of new elements. Human scavengers, for example, reclaim elements not only immediately after the end of their use, but also from dumping areas, and pigs held in piggeries live on provisional consumable discard. Consequently, 'an element's use-life' does *not* necessarily end with discard and refuse, as Schiffer (1972, 159) proposed.

In contrast to reuse, discard is a basic process.²¹ For Schiffer, there are different ways in which elements may become archaeologically traceable refuse (pl. 1.3). They may pass out of the systemic context through intentional discard (refuse) or without being formally

²¹ e.g. Schiffer 1972, 158. Cf. MacGregor 1999, 259. *Contra*. Gosden & Marshall 1999. That discard belongs to the 'biography of objects' not accepted by Gosden & Marshall 1999.

discarded (de facto refuse). Formally discarded elements can be further classified according to their spatial discard patterns (cf. Ascher 1977, 228): primary refuse is discarded in the same location in which it was created, while secondary refuse has been moved to another location. De facto refuse disposal includes activities as diverse as accidental loss, abandonment processes and disposal of the dead. As plate 1.3 shows, de facto refuse is constantly produced in the stages of procurement and manufacture as well as in the course of food preparation. In 1987, Schiffer introduced a fourth category of refuse, provisional refuse, which comprises stored refuse having a perceived reuse value.²² With this category, he modified his earlier proposed definition of discard as the termination of an artefact's use life as determined by its physical qualities.²³

Plate 1.3 shows that secondary refuse was only transported before it was discarded, whereas the plates 1.1-2 allow for transport to happen after disposal, for instance, as part of maintenance or cleansing processes. Although Schiffer considered transport as a post-depositional process, it has not played a significant role in his work. In fact, a serious consideration of post-depositional transport would lead to a modification of Schiffer's model in three important respects. First, whenever transport occurs after the disposal of discard, discard processes occur as a sequence. The option that an element could be discarded more than once would need to be incorporated into the flow chart as an optional process in the 'systemic context'. Second, discard would *not* necessarily terminate the end of an element's systemic phase, as Schiffer (1999, 22) argued until recently, because the post-depositional transport activity can take place with a view to reincorporate it into a social situation. Third, the consideration of transport would allow for classifying de facto refuse in terms of its location, such as primary and secondary de facto refuse. Consequently, the deposition of grave goods could be classified as secondary de facto refuse and not, as Schiffer (1972, 160) proposed, as secondary refuse. This would account for the fact that grave goods were not formally disposed of.

Schiffer argued that processes of reuse, reclamation and secondary discard, among other cultural formation (c-transforms) and natural formation (n-transforms) processes, transform material culture 'spatially, quantitatively, formally, and relationally'.²⁴ For Schiffer, they are

²²Hayden & Cannon 1983, 131-9; Schiffer 1987, 65, 66, 68; Rathje & Murphy 1992, 231. Cf. Hill 1995, 4.

²³The assumptions that people act rationally and according to modern economic principles caused Schiffer difficulties in explaining why whole and serviceable, and thus recyclable, objects were disposed of in contexts other than abandonment and burials (cf. I.2.5). This could have led to a modification of his model, if he had not labelling them 'anomalous' material (Schiffer 1972, 160), which allowed Schiffer (esp. 1983) to use physical conditions of material elements as a primary clue concerning site formation processes.

²⁴Schiffer 1976, 11. Cf. Dickens 1985, 35. *Four dimension of artefact variability*: Rathje & Schiffer 1982, 64-5; Schiffer 1987, 13-23. Schiffer seems to prefer the term c-transforms, whereas his followers tend to prefer more descriptive terms like anthropic (Stein 1987, 354) or anthropogenic (Bar-Yosef 1993, 16) processes.

not neutrally valued inferential bridges between the systemic and the archaeological realm (as Ascher (1977, 230, 223-9) suggested with his concept of 'reorganisation'), but rather factors responsible for the 'displacement' of material elements and 'distortion' of the archaeological record.²⁵ Reuse, for example, may be called a quantitative distortion, as it complicates the task of calculating the average life-span of elements and contributes to the underrepresentation of finds in the archaeological record.²⁶ Noel (1976) showed why reuse may be called a temporal distortion - a category Schiffer was not aware of: when building material is reused, it may be difficult to reconstruct the architectural history of a monument.

Binford criticised Schiffer's perception of c-transforms as *intervening* between the operation of a cultural system and its archaeological traces and, thus, detaching them from the rest of a cultural system. He argued that c-transforms are not 'absolute formation processes', but an integral part of the behavioural realm of an ongoing cultural system and that, therefore, the system determines the structure of its record.²⁷ As Tschauer (1996, 8) pointed out, Binford's principles are more like Schiffer's correlates, (which link behavioural variables to variables of material elements or spatial relations,) rather than transforms. Binford's stance has been widely accepted by Schiffer's followers.²⁸ Consequently, the main competing variants of processual archaeology, Schiffer's behavioural approach and Binford's middle-range theory, have been synthesised in recent years.²⁹

An approach that treats material patterning as part of the social construction of reality would focus, in the case of secondary discarding of consumption waste in a dumping area, on the newly established relation between consumption waste and dumping area. More specifically, it would explicitly attempt to infer from the spatial patterning the organisation of waste disposal or classificatory systems. If different kinds of consumption waste were discarded at different places or in different ways, this may provide insight into the classificatory scheme of a society, changing disposal patterns, or differences between social classes. Binford's approach also has the potential to focus on cultural categorisations of processes rather than analytical ones. Thus, grave robbery would not be neutrally classified as reuse, but as a grave-robbery, which has a particular connotation.

According to Schiffer's transformation theory, inference about behaviour is always obtained from *single* artefacts. Consequently, Schiffer would infer his five basic behavioural aspects from every single artefact even when they are found together in deposits. This approach enables Schiffer to distinguish homogeneous sub-assemblages

²⁵Schiffer 1972, 158; 1976, 42; 1983, 677; 1987, 10; Butzer 1982, 120

²⁶*Life-span*: Hildebrand 1978; Schiffer 1987, 50-3; Bernbeck 1997, 80 *Underrepresentation*: Bernbeck 1997, 77-8.

²⁷Binford 1983a; b 162. Cf. Binford 1981a, 200; 1987, 463; Hill 1995 125.

²⁸e.g. Bar-Yosef 1991; Goldberg *et al* 1993, VIII. *Contra*: e.g. Strauss 1993, 1, 5.

²⁹*Contra*: Strauss 1993, 2; Tschauer 1996, 1.

within 'coherent' context groups, but allows him to lose sight of more important aspects of deposits, such as the actual kind of deposit one is dealing with (e.g. middens or hoards), its composition and find association, the valuation of different kinds of discard as well as the organisation of domestic and secular space.³⁰

In accordance with his (Schiffer 1976, IX) goal of undertaking a 'genuine scientific study of the past', Schiffer formulated generalising principles, both in terms of empirical and mathematical laws, to reconstruct the systemic context. More specifically, Hildebrand (1978) and Schiffer (1987) claimed to have established invariant universal mathematical formulae with which, for example, the number of pots originally used can be estimated, as well as the quantitative relationship between different kinds of objects such as axes and pots, and between different qualities of pottery such as coarse and fine ware. Schiffer (1972, 1987) and Murray (1980) also claimed to have successfully developed and rigorously tested probabilistic principles to define the relationship between human behaviour and different kinds of material culture or spatial relations (correlates). One of these law-like generalisations deals with the interconnectedness of discard location with the weight and size of waste matter and the transport way to the dumping place (least-effort-principle). Another looks into the relationship between use and discard locations and states that 'with increasing intensity of occupation and/or increasing use of enclosed activity loci, there will be decreasing correspondence between use and discard locations for elements used in activities at family living spaces and discarded' (Murray 1980, 497).

Schiffer's formalised general principles cannot be used to reconstruct the ancient material system for the following two reasons. First, Schiffer became unfaithful to his own testing programme vision of science, as he has never tested his invariable principles against a statistically valid sample. In his first article, Schiffer did not test his behavioural laws at all, while in his major publication, he used the archaeological data of only one abandoned Pueblo settlement. Consequently, Schiffer does not know whether the behaviour of modern people, on which he based his generalisations, is indeed regulated by any invariable laws and whether these (modern) behavioural laws also occurred in past societies.³¹ Second, ethnoarchaeological studies have shown that disposal and recycling histories of objects are far more complex than Schiffer and his followers assumed. Consequently, their formulae cannot be used to reconstruct the systemic context. In addition, Schiffer did not take into account that variability may be explained with different and changing attitudes towards dirt (cf. Sommer 1991, 647-73; Hodder 1995, 3).

³⁰*Context groups*: e.g. Stein 1987, esp. 352; Goldberg *et al* 1993, VIII. *General criticism*: e.g. Hill 1991; Needham & Spencer 1997.

³¹Cf. e.g. Gould & Watson 1982; Strauss 1993, 6. *Contra*: e.g. Wylie 1982, 85. *Inconsistencies in Schiffer's work*: Tschauer 1996, 6-7.

Although Schiffer's transformation theory was initially developed to reconstruct an objective archaeological record which could then be interpreted, most of his work remained on the reconstructive level and never went as far as explaining behavioural change. Thus, Binford was right in criticising Schiffer's method as mere reconstructionism and, more importantly, in stating that Schiffer's model is an end in itself.³² It may even be argued that Schiffer became unfaithful to Behavioural Archaeology, since the explanation of human behaviour is one of its main goals (e.g. Reid 1985, 14).

Schiffer's Behavioural Archaeology is based on the following five core concepts: (1) Archaeological data is objective and is to be understood by all archaeologists in the same way. (2) Culture is not a mental phenomenon, but an integrated, adaptive, extrasomatic and material based organisation. (3) Human beings tend to respond to their environment rationally. (4) Laws are understood to be general and universal statements of the regular relationship of discrete variables (law-model of explanation). (5) Culture is conceived of as a system. With his emphasis on behaviour, laws, the discreteness of variables, and the givenness of the database, Schiffer's conception is positivist and consistent with the development of the New Archaeology research programme (cf. Gibbon 1989, 84).

The theoretical presuppositions of Behavioural Archaeology, influenced by the philosophical movements of positivism and functionalism, were criticised and rejected by post-processualists (cf. Gibbon 1989, 99-117). As I agree with their position, except for one point (cf. I.2.2), I shall briefly summarise their critique in the following paragraphs.

(1) As with literary data, archaeological data is neither objective nor is it always interpreted and understood in the same way. The interpretation is dependent, rather, on the socio-cultural background of the researcher and the historical period he/she is living in.

(2) New archaeologists' view of culture as a materially based 'thing-like' ecosystem is consistent with the presuppositions of positivism. However, to construct and explain human behaviour in terms of behavioural laws (nomothetic principles) or quantitative discard models with mathematical formulae has been considered too narrow minded in terms of an explanatory model of the past, as the positivist conception of culture and society ignores the non-empirical dimension of behaviour (consisting of rules, dispositional factors and social relationships).³³ Since the non-empirical dimension of behaviour patterns gives meaning to

³²Schiffer 1979, but 1988, 464. Cf. Tschauer 1996, 6, 10.

³³The underlying assumption (Schiffer 1987, 10), that if only the archaeologists' collection and the analytical procedures were sufficiently precise and their models of formation principles sufficiently exact, the knowledge of the past would be sharp and undistorted, is, as Sullivan (1978) emphasised, naive. Francis Bacon was much earlier the victim of this methodological error. For further parallels in the style of writing cf. Bacon's famous statement in *Novum Organum* that nature has to be tortured to get access to its rules and Schiffer's (1987, 7) sentence 'Regrettably, neither the historic record nor the archaeological record gives up its secrets about the past easily'.

the empirical dimension (the socio-cultural system of observable behaviour and its material culture), any explanation of human behaviour which neglects it must be inadequate.

(3) The positivist assumption that, if human beings are well adapted to their environment, they will tend to respond to that environment rationally, has been criticised in particular by Hodder. He argues that this view ignores the 'inner life' and the context to which the agent's action is related. 'Individuals are not simply instruments in some orchestrated game and it is difficult to see how subsystems and roles can have 'goals' of their own. Adequate explanations of social systems and social change must involve the 'individual's assessment and aims.'³⁴ As Lemonnier (1986; 1993) shows convincingly in his work on technology, there are culturally specific conceptions of rationality or, in other words, there is no objectively best course of action which all societies would recognise as such. Similarly, Lechtman (1984) and Latour (1988) pointed out that technologies, both in terms of micro-scale analysis and long-term analysis, can only be fully understood when studied within their social, cultural and historical context.

(4) By accepting that rules and dispositional factors on the individual level as well as on the cultural level are of considerable importance, the law-model of explanation as well as ecological functionalism must be regarded as inadequate, at least for the social sciences, as it ignores fundamental causes of human behaviour. More specifically, as Sommer (1990) and Hill (1992) recently emphasised, the size of material elements and the ease of replacement or hindrance differ considerably between historically and culturally specific contexts. Consequently, they must not be used as universal constants providing a solid foundation for predicting and explaining waste disposal practices.

(5) The majority of post-processualists criticised the positivist conception of culture, human beings and explanation, and rejected the view of culture as a system. By showing that the behavioural interpretation of culture is inadequate, they argue that causative factors in the process of altering a cultural system can no longer be restricted to external and environmental factors, such as disease, introduction of a new technology or food sources, but must also include internal change. By moving beyond the level of behavioural modelling, we may gain an understanding of why the relations in the system hold or why they were generated in the first place.

To conclude, I must reject the theoretical core concepts of Schiffer's Behavioural Archaeology, while I consider his life-history model of elements useful for discussing the variable depositional histories of waste, because it explicitly addresses the various reasons for

³⁴Hodder 1982c, 5. - Although behavioural and experimental archaeologists claim to reconstruct a human antiquity (e.g. Butzer 1982; Grayson 1983) they in fact eliminate the human factor.

the aggregation of refuse as well as the complexity of refuse movements and, thus, the complexity of actions forming any waste management system. However, for my own analysis, I shall use a modified model, which defines waste disposal practices as socio-cultural practices and accounts for the composition of assemblages.

As far as discard and recycling processes are concerned, I agree with Schiffer and modern waste management researchers in that these processes are atemporal and aspatial behaviours (cf. p. 11 with n. 1). I also think that Schiffer is right in terming discarding a basic universal process, which occurs in the biography of *all* elements, including architectural features, while reuse is an optional process. However, I disagree that their occurrence can be predicted for any given culture and that there are no inter-cultural differences in attitudes towards, and meanings of, waste management strategies.

(Structural) Symbolism

Douglas

The framework which Douglas developed in *Purity and Danger* in 1966, was not intended for the interpretation and explanation of waste disposal practices. However, it has the potential to be applied to archaeological studies of dirty waste, including different kinds of bodily wastes, as Hodder showed. It may also be applied to an analysis of refuse, if refuse is regarded as matter that is rejected because it does not fit into the symbolic system of a society or because it is not capable of being dealt with. Douglas' approach to the study of dirt is partly inclined to structuralism, because she conceptualised culture as a system of classifications and as a set of 'institutional and intellectual productions built upon those systems of classification and performing further operations upon them', including the mediation and reconciliation of a culture's taxonomies (Ortner 1984: 135). She seems also to agree that one of the most important secondary operations of culture in relation to its own taxonomies is precisely to mediate or reconcile the oppositions which are the bases of those taxonomies in the first place.

Douglas (1995, 41, 126, 146, 165) defined dirt as a 'by-product of the creation of order' and, in the words of Lord Chesterfield, as matter out of place'. Displaced matter includes everything and everybody that is considered either classless or belonging to more than one category. Thus, dirt may be conceptualised as a metaphor for cultural anomalies. For Douglas, one of the most important social values attributed to dirt is danger. Dirt may threaten the survival of a shared belief system in two ways. Dirt in the sense of a boundary-crossing double category may have the power to bring about change while dirt in the sense of a non-existing category may defy an existent classification and culturally shared norms. It seems incontrovertible that all humans and cultures classify, and that in all cultures there

are items, persons, relationships, actions, events and odours which confuse or contradict a given classificatory system. That dirt is a universal phenomenon does not mean that there is a universal system of classification and a universally culturally and socially defined category of dirt. The scheme of classification is fundamentally affected, Douglas (1995, 2, 36, 41) argued, by the degree of complexity of a society: while the rule of patterning operates 'with greater force and more total comprehensiveness' in primitive societies, it works in separate areas of existence in modern (European) societies. In accordance with structuralism and Hebb's (1949; 1958) perception theory, the categorisation of the indefinable as dirty and dangerous functions to protect the existing schemes of assumption and categorisation from challenges by recognising and absorbing 'cues' which harmonise past experiences on the one hand and by ignoring 'cues' which are discrepant and ambiguous.

Obviously, Douglas' original model on dirt is restricted to dirty waste and refuse and cannot be applied to other sub-categories of waste, such as manufacturing by-products or Schiffer's provisional discard. Within these limits, it is attractive for an archaeological study of dirty waste, as it allows the study of refuse as a universal phenomenon, while taking into account the idea that notions of dirt are culturally and socially shaped. Although Douglas focused only on identifying the normative fundamental assumption of the Old Testament in her analysis of food taboos, her model can be applied in order to identify competing classificatory systems within any one given society. For instance, Parker (1996) showed that in ancient Greece, pollution beliefs were stressed to different degrees by different people, and in different social realms such as the profane and the sacred.

However, there are also some difficulties with Douglas' notion of dirt. First, as Needham (1979, 43) pointed out, danger may not be a universal category. More important is, however, the point made by Carman (1990; 1996) that not all 'matter out of place' may be termed 'dirt'. He focused on materials and stated that a precious ring found in a meat-dish, a coin on the floor or shoes on a table may hardly be called dirty matter. Thus, Thompson concluded that the social value of an object as well as its intactness are crucial for its social and cultural categorisation as dirt. Thompson's criticism may be extended to some of the regulations in the *Sacred laws* of ancient Greece regarding objects and materials that were not tolerated on sacred ground. If women wearing jewellery were denied access to some sanctuaries, the jewellery may be termed 'matter out of place' or an object that is irreconcilable with goddesses such as Demeter, but hardly 'dirt' (cf. app. E, s.v. sanctuary, p. 459). Lastly, due to Douglas' static perspective, she only conceives of dirt and pollution as reflecting and reproducing an existing social and cosmological order, but does not take into account that dirt may equally indicate social change or may even be used as a social strategy by newly risen social groups to build up and enforce new social hierarchies (cf. Loudon 1977, 170; Corbin 1996, 191-2, 196).

In the passage in which Douglas addressed the question of why dirt is used in specific rituals, she touched upon the parameter of time, which does not otherwise play a crucial role in her interpretive approach. Dirt, she argued, moves through the stages of 'aformity', anomaly or matter-out-of-place, and 'aformity', and it is only in the transition between the second and third phase that dirt functions in some rituals 'to make a unity of all experience and to overcome distinctions and separations in acts of atonement'.³⁵ While the interpretation of rituals as mediators and reconcilers of classificatory oppositions is not a genuine contribution, her life-cycle of dirt, addressing transformations which operate within a given structure, goes beyond Lévi Straussian structuralism. However, as she does not explicitly incorporate transformation processes in her model, she only draws attention to the fact that structuralism has important implications for a historical approach.

Probably the most enduring contribution of Douglas in *Purity and Danger* was her body-society analogy, in which she argued that 'the powers and dangers credited to social structure are reproduced on the human body'.³⁶ As each culture has its own special risks and problems, the particular bodily margins differ to which its beliefs attribute power. Consequently, the quality of social relations may be inferred from bodily symbolism and in particular from the way bodily orifices are treated. More specifically, an analysis of pollution beliefs may give insight into the degree to which a society fears that their community boundaries are penetrated by enemies, existing internal power-relationships between sexes, classes or castes, or are threatened by individuals or a group of persons who do not fit into any category or fit into more than one.

Hodder

Douglas' interpretive framework and her physical body - social-body analogy in particular was used by many scholars to study symbolic implications of bodily wastes and bodily odours.³⁷ Hodder showed in various studies that this interpretive model can be applied in order to understand and interpret spatial waste disposal patterns in settlement sites. More specifically, he showed that they may be examined with a view to gaining insight into the locations of the principal boundaries between the familiar and the strange, the 'self' and the 'other', in terms of ethnic or social boundaries. In *Domestication of Europe*, Hodder (1990, 127) stated that 'in Linear Pottery society, the *domus* itself was the principal unit of social

³⁵*Use of dirt in rituals*: Douglas 1995, 170. Cf. Turner 1962 (cited in Douglas 1995, 177), where he interprets the Chihamba rituals to use paradox and contradiction to express truth which cannot be expressed in another way *Phases*: Douglas 1995, 161.

³⁶Douglas 1995, 116. Cf. Douglas 1995, 3-4, 141-59. - In Gennep's terms, different kinds of 'passages' have a similar structure to Douglas' notion of the body's orifices and, in Turner's terms, the indeterminacy of a liminal state expresses vulnerability. - Applications of the body-state analogy include case studies by Weiskel 1971; Marriott & Inden 1977; Duff-Cooper 1984; Turner 1984; Vigarello 1988, 9; Woodbridge 1991; Dean-Jones 1994, 241-3; Mukhopadhyay & Seymour 1994.

³⁷*Odour and social stratification*: e.g. Loudon 1977 (Europe); Seeger 1981 (South American Indians); Corbin 1996 (Europe).

life' and a 'self-defining productive unit', because discard is found immediately outside the house, in pits along the walls and in particular towards the front of the house, while the inside is kept relatively clean. The shift of dumping areas from outside the house to outside the community boundaries are an indicator of an enrichment of the self from the household to the entire community. In other case studies, Hodder (1982a; b) developed Douglas' intellectual framework further and suggested that in periods of stress or competition social or ethnic groups *actively* use their material culture, including dirty waste, to resolve their conflicts, keep their integrity, negotiate power relations or settle societal changes.³⁸

Since Hodder used many more case studies than Douglas, he was able to shed light on the variety of meanings that have come to be associated with waste disposal patterns. In the case of the radical social group of the 1968-generation, for example, principles of negligence, chaos and the removal of dirt and waste played an active role in the recognition and signification of difference in opposition to the non-1968-people. These new attitudes to dirt and waste, and their material correlates, may be interpreted as symbols of the radical opposition of a new generation, since these cultural values and practices were consciously used to create a social identity radically different from the generation trusting in cleanliness, and to confront the non-1968-generation with their shared traditional and petty bourgeois values. They may even be called symbols of 'opposition without intended synthesis', to use Miermeister's terminology (1998), as the 1968-generation was convinced that their (new) way of life was superior to the life-style of their parents.

In the case of the spatial disposal patterns of the African Mesakin - who dispose of all kinds of rubbish within their encircled living area (and allow their pigs, categorised as polluting, to move freely and to defecate in the courtyard where women cook and where both men and women eat), but keep the area immediately around the compound-wall clean - Hodder (1982a, 66; 1982b, 159) explained the patterning as a strategy of an economically dependent minority group to preserve its integrity. More specifically, he conceived of discarding as a strategy to keep the economically superior Arabian tribes out of their social lives by means of emphasising their threatening and averting character. Thus, Hodder argued that the Mesakin used material symbols not to create and maintain oppositions, but to protect cultural identity. The high wall surrounding the compound of the Mesakin is in my point of view a powerful argument in favour of Hodder's ethnic symbolism. However, the fact that Mesakin men paint purifying ornaments on the walls, so that activities like food processing can be carried out in the polluted living area, may point to internal social

³⁸*Material culture symbolism*: Hodder 1977; 1985a. *Waste symbolism*: Hodder 1982a, 62-5 (gypsies), cf. Sutherland 1977; Hodder 1982a, 66, 91 and 1982b, 159-63 (Mesakin and Moro and waste); Miermeister 1998 (1968-generation and waste). *More active approach*: Durkheim and Mauss (cited in Paige & Paige 1981, 53; Ortner 1984, 137).

conflicts between the sexes (Hodder 1982a, 185; 1982b 162). If so, the waste disposal practices of the Mesakin would (also) have intra-societal implications.

In the case of British gypsies, who dispose of all sorts of waste outside their caravans, while they keep the interior of their caravan clean and exactly follow their pollution rules, Hodder (1982a, 62-3) explained the discard patterning in terms of a protective strategy: '(...) Gypsies attempt to protect the inner self symbolically, by making a fundamental distinction between the inside of the body and the outside. The outer skin with its discarded scales, accumulated substances which are all potentially polluting, including hair, and waste such as faeces. The outer body symbolises the outer public self as presented to Gorgios who are themselves classified as dirty. The inner body symbolises the secret, the ethnic self.' Schiffer (1987, 74) questioned Hodder's interpretation of rubbish heaps as protective walls and pointed out that gypsies just follow patterns of waste disposal similar to other mobile groups. These statements need not necessarily be opposed to each other, since people may perceive of one and the same action differently at different times and in different situations. More specifically, gypsies might not have changed the way in which they used to dispose of their dirty waste, but have given the disposal of waste and the resulting spatial pattern a new meaning in times of economic stress. If so, the rubbish heaps surrounding the caravans of British gypsies also reflect and express internal social organisational differences (mobile/settled). Comparing the boundary-protective disposal strategies of the British gypsies and the Mesakin, it is obvious that they are not always related to the boundary zones separating competitive societies (as in the case of the gypsies), but also to the inner sphere of living of the society which is economically dependent on another. It may, therefore, be concluded that dirty waste can be indicative for social tensions, but that there is no cross-cultural patterning for inter-societal tensions

To conclude, Douglas' influential framework is sensitive both to cross-cultural and to culture-specific concerns. It stressed that dirt must be examined within its cultural, social and historical context. As Parker's study on pollution beliefs in ancient Greece has shown, Douglas' interpretive approach would allow for a complex contextual study of dirt and for the reconstruction of parallel existing and competing classificatory systems in a single culture at a given time. However, its inability to deal with social change and transformational structures and its focus on one sub-category of waste make it inadequate as a *genera* model for an archaeological study of changing waste management strategies in ancient Greece. In his archaeologically useful development of Douglas' intellectual framework, Hodder emphasised that meaning is constructed within historical contexts. He also pointed out that dirty waste is used within social and ethnic strategies to make an implicit or explicit statement. In my opinion, his boundary-as-strategy approach cannot be applied to Greek discard patterning without modification. More specifically, the differences

which can be explored in ancient Greece on the basis of excavation records are not between social units, but between different public places, namely sanctuaries, settlements, *agorai*, and cemeteries. Consequently, I favour an analysis of the symbolic involvement of spatial disposal patterns in distinguishing the sacred and the profane in my own model.

Historical approaches

There are a number of studies examining the relationship between the social and the individual body not as a static, synchronic analysis within small-scale societies, but in a more historically-oriented perspective. These provide a diachronic, processual analysis that explicitly addresses the issues of changes and transformations.

Deetz

Deetz (1977) noted in his archaeological study on patterns of waste disposal in North America in the 18th century that changes of disposal practices from careless disposal outside houses to disposal into square pits, often up to seven feet deep, went hand in hand with other major changes in material culture, such as architecture (from an asymmetric, open saltbox-house to a symmetric, Georgian house type), in household ceramics (from odd pieces to entire services) and in the number of chamber-pots (from one item per household unit to one per family member), as well as changes in religion, and eating habits (from communal to separate eating places). These changes occurred synchronously across the whole of colonial America. Therefore, they may be more convincingly explained with Deetz as reflecting the beginning of the new era of Enlightenment than with Schiffer (1972, 161-2) in terms of increasing population size and concentration. Deetz's work is important, since he showed that seemingly autonomous activities, such as religion, philosophy, disposal practices, and politics, are interrelated, and that changes in the social body also affect the organisation of disposal practices and the use of disposal facilities. However, he did not develop an explicit theoretical-methodological framework for explaining the general trends towards order and control either on a micro or a macro level, and he did not address the questions of the dynamics of these changes.

Elias

A framework, which explores the complex interrelation of the development of behaviour, bodily impulses and emotional restraints, (including the discharge of bodily waste and waste disposal practices,) with the development of personality structure and socio-political transformations, in particular with state formation, was provided by Elias in *The Civilising Process*, published in 1939. Although his process-model was developed on the basis of a specific case study, European historical societies since the Middle Ages, he nevertheless regarded it to be universally applicable and encouraged scholars from all disciplines to test his 'model of the development of humanity' (Elias 1987b, 226). In particular among the

German and Dutch speaking countries, Elias' model gained much attention and was used as an explanatory framework by archaeologists and historians alike (e.g. Burke 1991; Neudecker 1994, 12; Wohrle 1996, 162). In the English speaking world, by contrast, his work did not gain the attention and acknowledgement it deserved, since it was published at the wrong time (1939), in the wrong place (Switzerland) and in the wrong language (German). In fact, the emancipation of the increasing complexity of the instrument of power as a research topic did not start in Great Britain with *The Civilising Process*, but with Foucault's histories of punishment (1977) and of sexuality (1985).

For Elias (1987b, 228; cf. Parsons 1991), there are four 'elementary functions' which are common to all societies and which people belonging to a group have to fulfil for each other and for the group as a whole, if they are to survive as a group. These universal functions include control of violence, the 'economic function' (e.g. taxation, food provision), the development of knowledge/orientation, and self-restraint. Although they are interlinked and dependent on each other, they are relatively autonomous at the same time. These universals play a central role in Elias' process-model, in which they are conceptualised as continuous elements or processes. They operate not only at the inter-personal, but also at the inter-group, intra-state, and inter-state level. The development they take, for instance towards informalisation, specialisation, depersonalisation, centralisation, monopolisation or increase of self restraint, is determined by the social 'figuration'. Under figurations Elias understands changing patterns of interdependencies which weave people (both allies and opponents) together. This interconnectedness of people is to be understood as 'a fluctuating, tensile equilibrium, a balance of power moving to and fro, inclining first to one side and then to the other' (Elias 1992a, 131, cf. Featherstone 1987, 203). As Elias displays great sensibility towards fluctuations in power balances in human interdependencies, his figurational theory has been called a relational theory of power (Featherstone 1987, 203), which has some affinities to Foucault's theory of power (Arnason 1987).

In Europe, Elias suggested, the state formation processes resulted in the development of the four universals towards a greater rationality, an increase in the quantity and quality of the internalisation of self-restraint resulting in an efficient control of affects and bodily functions; a reduction in the use of violence and so towards the creation of 'pro-social situations. This trend did not follow a unilinear development, but rather developed in phases or waves (e.g. Elias 1992b, 68-75; cf. Featherstone 1987, 204). In addition, this long-term process was not at all times a general process, which included all social strata and both sexes.³⁹ In Europe, the aristocracy had a higher degree of self-constraint than the middle-class, while women had a higher self constraint than men. In addition, degrees of civilisation at a given time could also differ from country to country, as Elias (1992b, 129-

³⁹*Strata*: Elias 1992b, 342-50 *Sex*: Schröter 1997, 68.

42) showed in his comparative study. They could further vary between the inter- and intra-state level. The taming of violence within state-societies went hand in hand with the relatively unbridled persistence of violence in relations between states (cf. Mennell 1987, 559).

Elias defined civilisation as a high degree of self-constraint and, thus, termed the societal, behavioural and cognitive transformation processes in Europe, from the Middle Ages to the 20th century, 'Civilising Process(es)'. Owing to the association of superiority with these terms, they have contributed to the misunderstanding of the work of Elias. Best known is Duerr's (1998) critical statement that Elias would deny so-called primitive cultures a sense of civilisation. A closer look at the use of these terms within the framework of Elias reveals however that this is not the case. In his essay on time, Elias (1978b, 128-9) explicitly stated that all societies require a certain degree of self-constraint from its individuals to function. More importantly, Elias does not use these terms to classify different societies, but rather to define a *developmental continuum (Entwicklungskontinuität)* within a given society (cf. Schröter 1997, 79).

In his process-model embedded in figurational sociology, Elias did not deny the fact that particular individuals perform intentional actions. However, owing to his preference of 'people in the plural' over 'man in the singular' (Arnason 1987, 443), Elias conceived of processes rather as long-term patterns of behaviour by multiple agents (cf. Flannery 1999, 18). As far as intentionality is concerned, Elias (1992b, 87) did not give much weight to the success of the intentions and plans, because 'every social practice takes place in a stream of unplanned, aimless, albeit structural processes on different intentional levels'. Forty years after the publication of the *Civilising Process*, he became more radical and stated that the human being is a process (Elias 1978a, 118).

Most applications of the Eliasian model have emphasised the complex regulation of bodily impulses and gestures which amounted to a restructuring of personality and disrespected the crucial intersection of these process-universals with configurational changes (e.g. Burke 1991; Neudecker 1994, 12; Wöhrle 1996, 162). This framework can also be applied to waste management practices, since anthropological and sociological studies have shown that conceptual and behavioural changes did not only alter concepts and practices of bodily cleanliness, but also ways of bodily discharge and disposal of organic waste (Vigarello 1988; Corbin 1996). Whether or not socio-political transformation processes and changes in the personality structure and the Super-Ego affect recycling practices is not clear and would need to be tested. Judging from Spahn's doctoral thesis (1977, esp. 65-6, 142, 174-7), the critical phases of socio-political transformations, resulting in changing power distribution, social relations and integration and most probably also in changes of

waste disposal and recycling practices, are as follows: Greek society in the age of Homer and Hesiod may be called a *pre-polis* society, since the *οἶκος* mattered more than the *πόλις* and the latter tends to be mentioned only in unpleasant situations (cf. Walter 1993). In the course of the archaic period, the domestication of the hero and the process of social integration of the aristocracy on the one hand, and the increasing care and interest in the community and the *polis* on the other amounted to processes of depersonalisation of the exercise of power, monopolisation of physical force, and changes in ethics and values, from individual-centred to community-centred ideals (cf. e.g. Hdt. 1.29-33; Finley 1992, 121; Vischer 1965, 42-3). By the fourth century B.C., the citizen in the configuration of the *polis*-community was the ideal and the norm and the *demos* set the normative ideals and limits which were not to be crossed, at least in Athens (cf. Zanker 1995). In how far these socio-political changes were linked to changes in waste management practices, for instance in terms of changes in the degree of specialisation and formalisation involved in these practices or the extent to which *polis* authorities engaged in controlling the organisation of waste management would need to be examined.

To sum up, the Eliasian model is attractive for a diachronic analysis of waste management practices, as it looks at long-term processes of social and political development in terms of inter-state, intra-state, inter-group and interpersonal processes and their intersection with changes in the personality structure. Elias' approach is also attractive as it claims to be universally applicable, while taking into account culture-specific developments. In contrast to Schiffer, he took great pain in defining his transcultural and universal elementary, continuous processes. Elias did not explicitly address the question as to whether disposal of waste or practices of recycling are to be seen as universals, as Schiffer did. However, as Elias and his scholars explored behavioural variability across time and cultures, he would certainly agree that they are constants, if not universals.

Elias model explores only changes across time and not across space or contexts. Interestingly, the lack of contextuality has only been brought up recently by Middlezweig (1999), who pointed out that, in the Middle Ages, codes of behaviour varied considerably between monasteries and pubs and that there were context-specific thresholds of shame. Consequently, the degree of self-constraint did not only differ from culture to culture, from social group to social group or individual to individual in a given society at a given time, but also from social situation to social situation or from context to context. In addition, I think that Elias' conceptualisation of the transformation of the social character in historic Europe as civilising inevitably imposes a ranking upon societies of the world. Societies which went through a social transformation different to Western Europe or which have a lower degree of self-control than modern Westerners are not only different, they are inferior.

Consequently, I would prefer a more neutral terminology like structured process or development. This point of criticism is rather a matter of taste.

To conclude, this theoretical framework is generalising to the extent that it succeeds in identifying the basic processes involved in the reproduction and transformation of waste management practices across time. It is at the heart of Elias' framework that socio-political configurations are constantly in flux. Hence, used as an analytical framework, such a theory provides insights into waste disposal and recycling strategies as transformation processes. Consequently, Elias' model can only be used for exploring waste management practices across time. Since Elias' model is not sensitive to social and cultural contexts, it does not allow for a contextual approach and, thus, for an understanding of differences in the manifestation of processes of disposal and recycling in one society at a particular time.

Corbin

Corbin's *The Foul and the Fragrant. Odour and the French Social Imagination*, published in 1982 is a notable contribution to an interesting genre he called 'the history of sensibilities'. Corbin described the joined efforts of sanitary reformers and social engineers to sniff out the sources of stench among the 'great unwashed' and thus, improve public health in 19th-century France. Although his study is not explicitly linked to Foucault's Theory of power (1977) or Elias' Civilising process, it could pass for a case-study of both theoretical frameworks. Corbin showed, for example, that the lowering of the thresholds of tolerance of bad odours in the Mid 18th-century France went hand in hand with the regulation of cesspool emptying, the separation of beds and tombs, the requirement for patients in hospitals to use the privies provided, the deodorisation of the body, the homes and the cities, and - at least for the upper classes - a cautious washing with soap. He also pointed out that that this progress was by no means uniform across the whole spectrum of smells. His conclusions that these improvements in public health must be seen as more than a milestone on the road of progress, and that cleanliness constituted a form of social control structuring interactive relationships, recall Elias' evolutionary civilising process on the one hand, and his approach to interpret changing concepts of cleanliness in terms of changing socio-political configurations, resulting in changing power balances, on the other. However, in contrast to Elias, Corbin put much more emphasis on the active ways in which concepts of cleanliness and behavioural conditioning were used by people in power to maintain social differences. In his treatment of chlorine, for example, he emphasised the substantial effects of the introduction of chlorine on speeding up the progress towards the bourgeois control of the sense of smell' and the categorisation of the poor, who were unable to join in, not only as different, but as undesirable. Thus, the 'secretions of poverty' were blamed for the cholera epidemic in 1832, which had several non-poor victims, including Hegel (Corbin 1996, 143).

Thompson

In a number of publications, Thompson (1969; 1971; 1979) discussed his Rubbish Theory that provides an understanding of the creation and destruction of value and seeks to explain the mechanism bringing about the shift in the valuation of objects as valuable/non-rubbish to valueless/rubbish. In his terminology and conceptualisation of rubbish as an anomalous, indefinable and invisible element, a 'cultural category' and 'an integral part of the system' as well as his focus on cultural and social boundaries, his approach was indebted to Douglas (Thompson 1970, 918; 1979, esp. 88, 90, 91, 107). However, with his acknowledgement that stable and unstable tendencies coexist in a society (Catastrophe Theory) and his research interest in the social forces behind 'boundary dynamics', he went an important step further than Douglas, who focused on boundary maintenance strategies (e.g. pollution avoidance and taboos) and Perception Theory (Douglas 1968, 338-9).

Thompson (1969, 558; 1979, 2, 8, 92, 116) distinguished three possible kinds of value which can be ascribed to items, namely transience (in which value is declining), rubbish (nil or negative value) and durability (in which value is increasing). Rubbish occupies space in the world and can be used by people in the same way as any other item. It is deemed, however, by common agreement to be culturally and, as Carman (1990, 204) pointed out, textually invisible and non-existent. Thus, rubbish may be said to operate in a social environment at a level below that of discourse. Objects which are held by cultural convention to be rubbish include outdated fads in popular decoration, decrepit motor vehicles, slum housing, an unfashionable desk whose function and context of use was altered, and a desk sold at a second hand furniture shop (cf. Carman 1990, 197-8).

The categories of transience and durability do not only define the nature of objects and architectural structures, but also people's attitudes towards them. The valuations 'durable' and 'transient' are based on fixed assumptions in which a person's categorisation of the object determines the action he takes towards it. Accordingly, an old car will be treated differently from a Red Label Bentley, although physically these may be identical. Whereas not much effort is invested in a car of a bad condition, an enormous amount of time and money is diverted to restore the former glory of a Red Label Bentley (Thompson 1969, 559). For Thompson (1970, 917; 1979, 7, 97), rubbish, on the contrary, is a region of flexibility: 'it is clear that one man's rubbish can be another man's desirable object; that rubbish, like beauty, is in the eye of the beholder.' Its valuation is dependent on the action towards these objects, ideas and people. Accordingly, a slum occupied and restored by a 'Knocker-Through' becomes a period town-house. The invisibility of rubbish renders it an ideal tool for manipulation to restructure expectations of and ideas about the world.

These three categories of values are part of a transformation model, which Thompson (1979, 114) called the rubbish triangle. They can, therefore, be conceptualised as phases through which objects pass (pl. 2.1). In Thompson's scheme, no item can pass from one value-region to another without passing through the intermediate phase of rubbish on the way (Thompson 1969, 559). While it is quite a common phenomenon that transient objects become rubbish and subsequently durable, he stated that is quite unusual that durable items pass the phases of rubbish to become transient. In his earlier publications, Thompson (1969, 559) stated that objects pass from the transient category to the rubbish category by the combined processes of obsolescence (the result of technological evolution) and of dilapidation (the result of its being accepted and treated as transient). Things pass from the rubbish region to the durable region due to the effects of restoration (requiring time, money, and faith on the part of the owner). In his study of 1979, he went a step further and gave a sociological explanation for the phenomenon of sudden boundary shifts between non-rubbish and rubbish. They are the outcome of unpredictable changes in social 'forces' and social 'pressures', Thompson (1979, esp. 11-2, 102, 171, 212) suggested, operating both on the micro- (the individual) and the macro-level (the totality) and bringing about sudden jumps in the world-views of individual and/or large-scale ideological shifts.

Thompson's conceptualisation of rubbish in his 'category theory' is innovative, yet not unproblematic. To begin with, he subsumes under the term 'rubbish' objects to which different kinds of values are ascribed, including 'valueless' and 'dirty'. This may cause definitional and conceptual problems. More specifically, it is not clear whether household waste in Western Europe may be called rubbish or not. While it is dirty and beyond discourse, it is not rubbish in the sense of nil value, as households pay for its removal. Similarly, second hand furniture sold in a shop may be called rubbish, because it is considered unfashionable. At the same time, however, it has a market value and its existence is not doomed to invisibility. In addition, it is not always true that actions bring about boundary shifts on a practical level (and that rubbish has no value). With the statement that household rubbish is considered 'either too valuable or too troublesome to be simply discharged right out of the system', Thompson (1970, 918) acknowledged the primacy of attitudes over actions and the value of the objects under discussion, both characteristics for the durable or transient phase rather than the rubbish phase.

In terms of the transformation model, I doubt that every object has to pass through the transient/rubbish/transient sequence. I agree with Thompson that restoration of slum housing by a 'Knocker-Through' may be interpreted in terms of a shift from rubbish to durable. In the view of the inhabitants of this building, however, the jump would have been from the transient to the durable phase.

The rubbish-triangle is embedded into a processual life-cycle (pl. 2.2), similar to those of Schiffer (1972), Appadurai (1986) and Marshall & Gosden (1999). In accordance with this dynamic model, the conceptualisation and treatment of items as transient, rubbish, or durable occurs in the phase 'goods in circulation', which is an intermediate phase between production (when objects come into being) and consumption (when objects cease to exist). Rubbish may not only be the result of shifting objects out of the transient phase. Rubbish may also result directly from production processes and includes by-products of manufacturing processes, industrial waste products, and products of the human body such as excrement, urine and vomit (Thompson 1970, 917). The main criteria for production-rubbish is its uselessness (Thompson 1970, 917). The usage of the term consumption in the sense of removal from circulation is quite confusing and may be better substituted by the term disposal. Accordingly, rubbish and used-up transients are disposed of, while durables ideally last forever and, therefore, never enter the disposal phase. Waste matter may serve as secondary material for the production of a new item, which then would pass through the different phases.

There are a number of difficulties with this model. First, the model implies that consumption, production and the transient/rubbish/durable sequence are of the same nature. This is, however, not the case, since production and consumption are behavioural categories, while durable and transient are both conceptual and behavioural categories. Since Thompson emphasised that attitudes towards objects define the ways in which they are treated, at least in the case of transient and durable objects, they would need to be positioned before the use category. The tension between category theory and transformation model is also reflected in the different classificatory qualities attributed to rubbish. While anything valueless and covert, yet still in use, characterises rubbish in the category theory, it is characterised as anything useless that may be of use in the future for a purpose other than its original in the transformation theory. Second, Thompson's dynamic model - as Schiffer before him - does not consider the fact that objects that were removed from circulation can reenter the use phase, for example, by scavenging.

To conclude, the focus on the transfer of an object from a period of use and declining value to one of preservation and increasing value, as well as the focus on physically durable things, made Thompson's model attractive and useful for archaeological heritage studies (Carman 1990, 197-202; 1996, esp. 27-9). It is, however, of limited value for an archaeological study of waste management, giving primary importance to practices rather than objects. I consider Elias' Civilising Process a far more fruitful approach than Thompson's Catastrophe Theory.

Post-processual archaeology, dirty-theory, symbolism and theory of practice

At the end of the 1970s and during the 1980s, the theoretical approaches known as post-processualism, anti-processualism or post-positivist have gradually come to dominate prehistoric archaeology, in Great Britain at least, and have had a major influence elsewhere. These approaches are important also with respect to the study of waste management, introducing a number of new aspects into this field of research. Before discussing their specific relevance for my thesis, I will first give a brief overview of their general points.

Post-processualism can be understood as a British reaction to American New Archaeology. More specifically, this movement emerged out of the dissatisfaction with the conceptual framework of logical empiricism, while drawing on positions which relate to the critical human sciences (e.g. Hodder 1985a; Tilley 1989, 185). It is a part of post-processualism that there is no formalised body of theory and practitioners have favoured philosophical positions, which range from Marxism to hermeneutics, semiotics and structuralism, and even to post-structuralism and post-modernism. Post-processualists also presented divergent views on how to interpret and understand material culture. For instance, whereas Hodder (1985a; 1987; 1990) and Barrett (1987) suggested that a contextual archaeology provides a new logic for archaeological interpretation, Shanks and Tilley (1987a) suggested a plurality of archaeologies. Thus, it would be inappropriate to hypothesise the existence of a 'school' with agreed formal definition or limits. As Hodder (1991b, 37) suggested, it might be more accurate to talk of a post-processual phase in the development of anthropology and archaeology.

Although the following sample of post-processual attitudes is by no means representative for all practitioners, it summarises in a way the alternative interests and stances taken in response to the behavioural archaeologists' concepts of (1) culture, (2) the role of the individual, and (3) explanation.

(1) Post-processualists argue that more importance has to be placed on the non-empirical dimension, consisting of rules, dispositional factors, attitudes, emotional processes, as well as symbolism, and the interrelation of social relationships with material culture (e.g. Conkey & Spector 1984, 24). Consequently, they have substituted the term 'behaviour' with the term 'action', which includes intentionality and meaning. A post-processual oriented analysis of waste management would regard disposal and recycling practices as socially-informed and symbolically-informed activities and would focus on the symbolism and socio-cultural meaning of waste and recycled items. It would examine the interdependence of disposal practices with concepts of and attitudes towards dirt (dirt-theory) and the social order, in particular gender relations.⁴⁰ The relation between material culture and the non-empirical

⁴⁰*Dirt-theory*: Hodder 1995, 3. *Post-processualism and gender studies*: Engelstadt 1991

dimension is seen as reflexive, i.e. social reality represents the non-empirical dimension (consisting of rules, dispositional factors and social relationships), but at the same time constitutes it.⁴¹ Consequently, the material culture remains become important in the process of understanding both material and non-material aspects of life and, in particular, the social strategies and ideologies of producers and owners of material cultures. This point of view has three implications. First, it implies that material culture may be actively used to influence and manipulate other social agents' perceptions. This aspect was already recognised by Xenophon, when he stated that building programmes were adequate means of creating the impression of prosperity and security.⁴² Second, different social agents may interpret material culture differently, as their biographies and their social background vary. Consequently, archaeologists should strive for the production of many views and attempt to form a plurality of interpretations of material culture rather than a single view. Third, as the frame of meaning changes over time, new perceptions of material culture may emerge. Some post-processualists would also argue with Elias that the social configuration of those writing archaeology must be considered, as it shapes the conceptual framework they use in reconstructing the history of ancient and present societies and influences the type of interpretation that seems plausible.⁴³

In contrast to the processual interest in cross-cultural analogies, generalities and laws, post-processualists hope to stress diversity rather than similarity between past societies. They tend to see all behaviour as specific to its place and time. Following an extreme point of view of cultural relativism, cross-cultural analogies should be avoided, because material culture can only have value or meaning within its 'frame of meaning' (Giddens 1976, 142; Hodder 1995, 8).

(2) Relatively new to archaeology is the emphasis of some post-processualists on the reflexive relationship between human agency and social structure. This concern in archaeological thought goes back to Giddens, who proposed a theory of 'the knowledgeable social actor' (Giddens 1979; 1984). The expression refers to the assumption that any social actor knows to a great extent how society operates and is more or less capable of reasserting, manipulating, or transforming those rules within a given social situation (Giddens 1979, 49-95; cf. Johnson 1989, 191-2). Although post-processualists are unified in stressing the importance of the dialectical relationship between structure and agency and in rejecting functional explanations of social action as 'manifestly inadequate' (Shanks & Tilley 1992,

⁴¹*Reflexivity*: e.g. Bourdieu 1977, 91; Moore 1986; Scholte 1988; Wiessner 1989; Hodder 1992, 12-6; Melas 1993, 373. *Meaningful constitution of material culture*: e.g. Hodder 1992, 161; 1995, 3; Barton & Clark 1993.

⁴²X. *Poroi* 6.1. Cf. Th. 1.10.2; 6.16.1-3; Linders 1996 ('ritual display'). In the Accadian 'Empire' (D. Matthews pers. comm.), monumental architecture emerged at times of political weakness, probably to demonstrate strength.

⁴³*Post-processualists*: Moore 1982, 74-5; Tilley 1991; Engelstadt 1991, esp. 505. *Classical archaeologists*: Borbein 1979, esp. 102; Kalpaxis 1990, 1993.

1), they are divided regarding the notion of the status of the human subject. Hodder, at one end of the scale, conceived of social actors as active individuals who 'use a myriad of means, including material culture symbolism, to create new roles, to redefine existing ones and to deny the existence of others'.⁴⁴ A similar stance was taken by Barrett (1987) who argued for active social agents using material culture as a means to create an understanding of themselves as social agents. These conceptualisations of the social agents are, in my understanding, rooted to much in our modern Western world view. They may not be applicable to all societies, as the individual is not a cross-cultural category (Carrithers *et al* 1985; Johnson 1989, 190) and not all people may be in the position of post-modern people to change roles and create identities. At the other end of the scale, Shanks and Tilley (1987, 61-78; 1992 116-34, esp. 116) seem to pick up an Eliasian viewpoint when they state that 'individuals are competent and knowledgeable while at the same time their action is situated within unacknowledged conditions and has unintended consequences'.

(3) Post-processualists explain material culture variability in terms of social actors who have different attitudes, world-views, social biographies and pursue different social goals. Change is interpreted as the intended or unintended consequence of social actions.

In the following paragraphs, I will consider the implications these approaches may have for the study of waste management. This will be achieved by concentrating on two studies dealing with waste disposal, which may be termed post-processual because of their emphasis on cognitive factors, Structuration Theory, agency and symbolism. Owing to my own interest in waste management *practices* in ancient Greece, I have selected studies touching upon an anthropology or archaeology of practice.⁴⁵ While Moore's (1982; 1986) discussion on spatial discard patterns of waste in settlements of the Endo, Kenya, is not explicitly linked to a theory of practice, Hill's (1992; 1995; 1996, cf. Hansen 1998) discussion developed a theoretical framework for distinguishing discarded settlement litter from deliberately and carefully placed ritual deposits in Iron Age settlements.

Moore

In her study of the Endo, Moore (1986, 102) observed that ash from the fire, animal dung and chaff from finger millet and sorghum were disposed of separately from each other and from the remaining waste (fig. 1).

⁴⁴Hodder 1995, 8. I wonder how this view fits with Hodder's (1995, 164) definition of material culture as a coherent, structured, and systematic effect of historical meanings in the material world. Equally, Hodder's (1990, 84) explanation for excluding certain finds from Neolithic houses from his definition of *domus* is based on coherence and statistical patterns and not on the active individual social agent who manipulates material culture.

⁴⁵Hill 1995, 6, 126. *Emphasis on symbolism*: e.g. Hoffman 1974 (early Dynastic Egypt); Whitelaw 1991 (Greece).

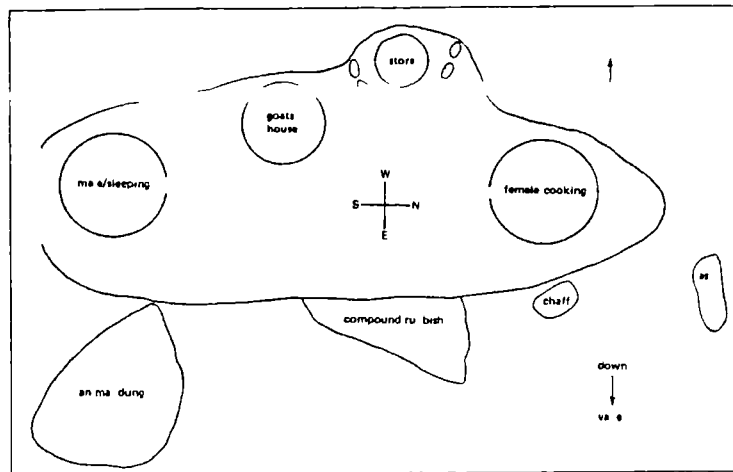


Fig. 1: Localisation of waste in a typical Endo compound

Ash, chaff and dung were not discarded outside the compound, like all the other waste, but remained inside. The cultural significance of these waste types is further stressed by not referring to them with a collective term for discard, but by referring to their distinct names. Moore (1986, 60-3) pointed out that the disposal patterns of these three waste categories were interlinked with the most important social relation among the Endo, the relation between the sexes, in three respects. First, they resulted from gender-specific activities. While ash and chaff resulted from the female activities of cooking and winnowing, dung was produced by the goats which men looked after. Second, ash and chaff were disposed of in the female area of the compound, dung exclusively in the male part of the compound. Third, women were buried near chaff and men near dung. Moore (1986, 167), therefore, concluded that the disposal practices of ash, chaff and dung constituted and were constituted by ideology and, more specifically, the social relationship between the sexes. The male and the female were not only conceptualised as distinct categories, but are also ascribed different social values. Whereas dung, as a metaphor for male activities and values, carried a positive connotation, ash was conceived of as dirty and polluting and would, therefore, never be disposed of by men. Thus, disposal practices of ash and dung may be seen as reflecting and maintaining social inequalities.

More direct contact with the modern nation-state of Kenya brought about observable changes in traditional prestige systems, ideology, including gender relations, as well as material culture, such as house types, organisation of space and waste disposal practices (Moore 1986, 143-5). As far as waste disposal patterns are concerned, the new life-style and the new social values resulted in no longer segregating ash, chaff and dung. At the same time, families which were successful in the new system mixed ash and dung to signify modernity. In this case study, change in the way of thinking, living and acting, was forced upon the Endo by the state. These changes may be explained with the Eliasian model as a

change in power-relations between the state and social groups. Interestingly, they did not lead to a taming of the Endo and an increase in self-restraint, but simply to an increasing homogenisation of spatial disposal patterns of different waste types.

To conclude, Moore showed that disposal practices can be symbolically-informed and may constitute, and be constituted by, social reality and ideology. More specifically, her study highlighted that systematic analysis of spatial waste disposal patterns may reveal insight into the non-empirical dimension of a society, including its conceptualisation of waste as a homogeneous or non-homogeneous category and its economic and social organisation. With respect to the European practice of separating garbage (i.e. wet organic matters) from the waste stream for feeding the pigs, it can be concluded that spatial and linguistic separation from other waste matters may also occur on the basis of intended recycling practices. As soon as garbage was no longer fed to pigs, the term garbage was used synonymously with waste, because they were indeed considered the same (contra Rathje & Murphy 1992, 9). These observations may allow for the formulation of the following two hypotheses: In societies in which a significant number of, or the majority of, items and materials are not discarded together at one spot and have a special term, there does not exist a homogeneous and abstract category of waste, drawing on notions of unwantedness and discard. Only post-industrialised and post-capitalist societies, tending to stress the non-value of discard rather than its possible recycling value (Thompson 1979; Illich 1989, 28; Sommer 1990, 49), have a homogeneous and abstract concept of waste. This latter point will be discussed in more detail under II.5.

Similarly to Hodder, Moore conceived of disposal patterns as an analytical tool for the detection of social tensions and, in particular, asymmetric power relations. However, while Hodder focused on tensions between societies, Moore drew attention to intra-societal tensions. In addition, while Hodder touched upon the spatial distribution of dirty waste only, Moore considered different qualities of waste such as dirty, highly valued, unwanted. In ancient Greece, tensions between the sexes did not seem to have been the most important social relation, at least in pre-Hellenistic Athens (cf. e.g. Dean-Jones 1994, 243-7). Far more important from the Homeric period onwards were 'class' inequalities. Therefore, a study of class-related disposal patterns may be more fruitful for ancient Greek society than the analysis of engendered disposal patterns. As I have already pointed out in connection with Hodder's studies, it may also be interesting to analyse systematically the interrelations of disposal patterns and the homogeneity of waste with the ideology of different public places, including sanctuaries, settlements, *agorai* and cemeteries.

Hill

In contrast to Moore who illustrated how disposal practices may function to maintain fundamental assumptions concerning the social order, Hill focused on the way in which depositional practices were performed in the Iron Age of Wessex with a view to gaining insight into the classification and valuation of deposits, and the valuation of, and attitudes towards, items found in them, such as potsherds or animal bones. More precisely, Hill discussed in his Ph.D. thesis and some smaller publications (1992; 1995; 1996) a model for distinguishing rubbish (which results from discarding material from daily domestic activities in the manner of an 'routine refuse maintenance strategies') from ritual (which results from depositing material from specific social actions in special ways; cf. Hill 1995, 2, 10, 22, 98, 112; 1996, 22, 28). As it is Hill's central concern to evaluate the significance of specific archaeological finds, the main research question put by Hill in the handy phrase 'ritual and rubbish' may be more precisely rephrased with the title of 1998' autumn conference of the Sussex Archaeological Society 'Ritual or rubbish in the first Millennium B.C.'.

It may be worth stressing, however, that both of the questions asked by English prehistorians 'Is it ritual or rubbish?' and 'Is it a ritual or rubbish deposition?' use as antonyms two incompatible terms. In fact, they confuse cause and effect⁴⁶:

ritual/votive deposit *containing* special items *resulting from* ritual (action producing it and/or way of disposal)

rubbish deposit *containing* ordinary items *resulting from* routine (action producing it and/or way of disposal)

Fig. 2: Ritual or rubbish

If rubbish is defined as the '*material (...) result of daily routine refuse maintenance strategies*' (Hill 1996, 22), then *artefacts and ecofacts* which entered the archaeological record by being disposed of in a distinct form are the equivalent counterpoint to rubbish. Equally, if emphasis is put on *ritual* conceptualised as the context and the way in which artefacts and ecofacts entered the archaeological record, then *routine* has to be its opposite. Consequently, the question originally asked, is it ritual or rubbish, may be more precisely rephrased in the following ways. Placing emphasis on the action involved, the question is either 'was the archaeological item or finally used in or a by-product of an everyday or a ritual activity?' or 'was it a ritual or routine practice that put artefacts in the ground?'. Putting emphasis on the result of these actions the question may be rephrased as 'is it a ritual or rubbish deposit'. To rephrase the question using the term 'rubbish' is far more difficult, since Hill has never explicitly named its counterpoint. One possible way of putting the question could be 'is it rubbish or a votive deposit'.

⁴⁶For prehistorians the patterning of artefacts in the archaeological record plays a crucial rôle in identifying rubbish and non-rubbish. Consequently, Hill probably did not confuse physical remains and action, but cause and effect, since the stratigraphic evidence reflects directly the way the items have been disposed of, at least under ideal circumstances.

On a theoretical level, Hill (1995, 98-101, 123; 1996, 25-7) applied Giddens' analytical framework of different levels of conscious practices to distinguish formal depositional process from habitual daily practices. For Hill (1995, 98), 'ritual activities belong to the realm of 'discursive consciousness', i.e. 'a level of awareness determined by the ability to put things into words', while 'routine activities' operate in the realm of 'practical consciousness', i.e. 'what actors know (believe) about social conditions of their own actions, but cannot express (Cohen 1989, 286; cf. Giddens 1984, 41-4). On a more methodologically-informed level, Hill drew on the notion of ritualisation, to distinguish everyday depositional processes from those aiming at an explicit reproduction of cultural norms in the archaeological record. From the perspective of ritualisation, the significance of the 'symbolically dominant' acting lies not in being an entirely separate way of acting, but in how they constitute themselves as *different* and in *contrast* to 'conventional' activities (Bell 1992, 90-1, 220). Or, as Hill (1996, 27) put it in a more Giddens-oriented phrasing: ritual is a social practice which draws on and reproduces 'structures, habituses, like other practices, if in a somewhat different manner'. The distinctions between regular eating and the Christian eucharistic meal for example, consist in the distinctive periodicity of the meal, insufficiency of the food for physical nourishment and a high degree of formality and fixity (Bell 1992, 90-1). Following Hill, the differentiation of the ritualised act of disposal from Hill's so-called 'just' or 'simple' waste disposal includes the degree of consciousness and care involved, the (in)significance of the location of the deposition for a society, to a certain extent, the frequency with which a pattern occurs in the archaeological record. When Hill (1995, 71) argued that a deposit containing, among other finds, twelve thigh bones of cattle in one layer is a ritual deposit accounted for by the large scale of meat consumption at one occasion, he applied the principle of differentiation to the action producing the items found in assemblages.⁴⁷ As it is essential to Hill's methodology to identify differentiation and variation from everyday practices, his argument is based on coherence and the development of patterns. Owing to this theoretical-methodological approach, Tschauner (1996) accused him of relying on New Archaeology methodology.

Hill's conceptualisation of ritual activity in terms of what Bell (1992, 74) calls ritualisation is more appropriate for his purposes than the traditional definition of ritual as a formal, stereotyped and repetitive social action which had been put forward by some archaeologists (e.g. Levy 1982; Richards & Thompson 1984; Renfrew 1985; Luff 1996). The perspective of ritualisation also allows to avoid the profane and sacred dichotomy, as Shanks (1997, 169) pointed out, which has been considered inappropriate for ancient Greece for a long

⁴⁷Hill uses the term rubbish in two different ways. It may be used to describe either the physical output of a daily meal, which has *not* yet been discarded (Hill 1996, 27) or an object which has already been discarded (Hill 1996, 22). Both are outputs of routine actions and thus related to the everyday sphere, but at different stages of the model. The distinction is important, since not all 'domestic rubbish' has to be disposed of in a habitual manner. Therefore, I have substituted Hill's term rubbish meaning domestic rubbish with butchery waste.

time (e.g. Walter-Karydi 1985, 100-1; Connor 1988; Stähler 1993, 5; but Wasilewska 1993, 471). The conceptualisation of ritual and ritualisation respectively as difference and contrast may be applicable to settlement studies, but not to cemetery studies. At cemeteries, ritual deposition of human bodies is the norm, while the discard of dead corpses is the exception (cf. Cullen 1999; app. F; III.5.1). The definition of differentiation in terms of different degrees of consciousness introduced a new distinction which is not as clear-cut as necessary for an archaeological application. When the mainstream interpretation can be a matter of 'negotiation', as Hill (1995, 112; 1996, 28) stated, ritual and routine actions, and votive and rubbish deposits, are not necessarily exclusive categorisations. They are rather a matter of perspective and may even be different layers of a specific cultural action. For instance, the act of killing sacrificial animals for a Greek blood offering might be a routine action for a priest, but this need not necessarily mean that he is unable to discuss what he is doing. In addition, I do not see why intentionality is only a distinctive feature of ritual. A butcher, for example, must also decide how many animals he will have to slaughter for one day and when this should take place. I do not appreciate Hill's definition of ritual as an explicit and overt reproduction of cultural norms and structures, and routine as an implicit reproduction of cultural norms and structures, and I disagree with Hill's underlying assumption that only items and materials deriving from everyday activities can be carelessly thrown away. For instance, at the end of the *Adonia*, a private festival celebrated mainly by courtesans and concubines in their dwellings at summer-time, the flower-pots into which the miniature gardens had been planted, were thrown away once they had fulfilled their purpose (cf. IV.3.1). In this case, the transformational aspect is stressed and the original phrase 'ritual or rubbish' may be rephrased as 'from ritual to rubbish'. In other cases, in which sacrificial remains were treated as ordinary waste, the link between ritual and physical results may no longer have been obvious, for instance when they were deposited for a third or fourth time.⁴⁸ Consequently, I think that discarding practices signify the discarded objects as unwanted or worthless at the time of their disposal, but do not allow us to reconstruct any valuation of items for their use-life.

On a practical level of identifying rubbish and votive deposits, I think that the principle of differentiation and speciality may not work in all cases to identify ritual activity. The ash, chaff and dung disposed of by traditional Endos are clearly disposed of differently to cans, but I think it would be wrong to identify the disposal of these substances as ritual deposition and the substances themselves as ritual deposit. Similarly, the cautious way in which nuclear waste is treated nowadays stands in a sharp contrast to the way in which everyday's rubbish is being discarded. It would be wrong, however, to classify nuclear waste as ritual waste. Hill's hypothesis that unusual disposal patterns are indicative of ritual waste has to be modified as

⁴⁸On the difficulties involved in the reconstruction of the original function and significance of finds that were not found in primary (de facto) waste disposal deposits cf. Ascher 1977, 237; Schiffer 1987, 121-39 (noise).

follows: special waste, such as dangerous waste or waste that has a symbolic connotation is disposed of differently.

To conclude, Hill's framework for determining the nature and origin of archaeological finds has become quite popular in prehistory, Roman Archaeology and zooarchaeology (e.g. Clarke 1997; Rudling 1997; Richardson 1997, but Cullen 1999). At first sight, his research interest, together with his focus on disposal activities seemed attractive also for a study of waste management studies with respect to the identification of rubbish deposits in Greek sanctuaries, settlements, *agorai* and cemeteries. However, for reasons discussed above, I consider his conceptual basis as inadequate to reconstruct the significance of single finds and find assemblages. I consider the traditional conceptualisation of waste as unwanted and useless objects much more persuasive for the identification of waste deposits. Accordingly, carelessly disposed of objects (cf. Donderer 1991-2; Ginister in press) or the content of never-collected pits with metal scrap (e.g. Ramage 2000, 86) may be called waste.

I.2.2 Synthesis

The underlying philosophical presuppositions of processual and post-processual approaches have been perceived as fundamentally different for a long time.⁴⁹ Due to the newly arisen interest in approaches combining the universal with a culture specific approach (e.g. Drewett 1982; Bell 1992, 69; Hubert 1994, 11), the phase of synthesis emerged, drawing on the insight that the two different theoretical stances and modes of analyses are not necessarily opposed to each other. Bintliff, for instance, stated that the 'old antagonism between the New Archaeological and the Post-processual programme (sic!) is unproductive'.⁵⁰ He did not, however present a synthesised theoretical-methodological framework, but rather picked out eclectically some points of either perspective and discussed their validity. An integration of both approaches can be achieved, if they are reinterpreted as research oriented strategies which bias researchers' expectation on *the type of answers that will make understandable* their subject matter and which are operating on different levels of scientific thought.⁵¹ This enables me to embed processual methodology in theoretical problems derived from post-processual archaeology, aiming at the reconstruction of the rich intellectual and cultural life of human beings.

Although I rejected Schiffer's scientific model of the archaeological record as inadequate, I think that behavioural archaeologists were right in pointing out that the archaeological

⁴⁹On the desire to establish clear lines of demarcation between New Archaeology and Post-processual Archaeology cf. e.g. Thomas 1995, 344. Schiffer & Skibo 1997, for example, took note of post-processual responses to their work in the bibliography, but escape a discussion by stating that their approach is the right one.

⁵⁰Bintliff 1998 38. Cf. Hodder 1991b, 38; 1992, 172; Preucel 1991, 28; Yoffee & Sherratt 1993; Hill 1995, esp. 2. Tschauer 1996.

⁵¹Cf. Alexander 1987, 1-21, esp. diagram 1.2.



record is no 'fossilized' record (e.g. Schiffer 1976, 11). Therefore, I conceive of statements regarding the representativeness of archaeological data and authenticity of spatial patterns as a preliminary step to structural or contextual archaeology's interpretation of meaning of past material symbols (cf. Patrick 1985, 56). These explicit statements are as crucial for archaeological research as 'source criticism' for historical research. When mixed bone deposits are interpreted, it would be necessary to find out whether they resulted from erosion, multiple interments at one point in time, or from adding-in later bodies and pushing aside earlier ones (cf. Hodder 1990, 237). Post-processual studies, which tend to disrespect environmental effects and other transformational processes, risk losing their credibility (cf. I.1.2). For instance, Hamilton's (1997) study of prehistoric pit patterns in England with respect to their visible interconnectedness and their character (public *versus* private) is in my point of view not at all convincing, as she did not ask the important question as to whether the ancient landscape was as bare of woods as it is nowadays.

Methodologically, I follow - as indeed do most post-processualists - the processual argument of coherence and pattern fitting (Tschauner 1996). On a theoretical level, however, my integrated model is built on the post processual concept of culture and rejects Behavioural Archaeology's concept of culture, which is a core feature in the explanatory model of Schiffer. It does not aim at reconstructing only the dominant discourse, as Douglas (1995) did, but also the discourses of sub-cultures (cf. Thompson 1979; Elias 1992a; b). My framework acknowledges that there are behavioural necessities that unify humanity, since they can be found in all cultures of all known places on earth, and at all times and that the practices of discard and recycling, beside eating and drinking, are to be seen as universal.⁵² In this synthesising approach, the 'process' vision of the past is combined with that of agency (Leeuw & Torrence 1989, 10; Flannery 1999). Consequently, the concepts of discard and recycling may be perceived as impersonal processes or as socially integrated, intentional and meaningful activities.

This approach allows for cross-cultural comparisons and provides one way to maintain a universalist position by also clearing at the same time the obstacle of universal rationality as proposed by Lévi-Strauss (1969), followed by Schiffer (1987), and modified, among others, by Horton (1982) and Renfrew (1994; Renfrew & Bahn 1991; Renfrew & Scarre 1996). This argument attaches explanatory importance to context, concepts, dirt-theory and meaning, so that the non-empirical dimension, (that is to say historical, cultural, and social schemes which lie behind concrete practices,) is considered. It takes into account that individuals are social agents with intentions and that material culture is meaningfully

⁵²Binford (1978) suggested in his famous study of the archaeological patterning of waste produced by people sitting around a hearth, the basic universal would be the patterning of discard. This is not true, because the placing around an open-air hearth is too much dependent on factors like weathering (wind) or social order. It is rather the activity of 'tossing' items that are no longer wanted items that is a universal.

constituted. Maintaining a universalist position does not necessarily mean that a past-as-same or a homogenous world view is reinforced, since it is not the use of invariable, universal laws of behaviour *per se*, as Hill (1992, 59) assumed, that have prevented processual archaeologists from perceiving the past as different, but rather the loose use of these principles and the playing down of differences as mere anomalies (e.g. Schiffer 1972, 160). A contrastive past may be reconstructed when behavioural universals are used to highlight similarities and differences between contexts, such as sanctuaries and cemeteries, or urban and rural places, or rich and poor people. Universals which account for cultural and contextual variability ought to be fixed in character on the behavioural level and 'elastic' enough on the post-processual level (cf. Casey 1996, 29).

Such 'elastic universals' are, for example, 'funeral practices' as well as eating and drinking.⁵³ Although eating and drinking activities as such are universal, the social and cultural context within which eating and drinking takes place, and the rules and manners associated with these activities, are culturally shaped and underlie processes of transformation.⁵⁴ For example, during the Middle Ages it was common in Europe to share one drinking cup and to eat out of one pan with one's hands. Consumption debris was thrown to the ground of the living room. Besides the context within which eating and drinking takes place the variety of food consumed by a society as well as the time at which it is appropriate to consume certain food is affected by cultural values, rules and collectively shared tastes. Whereas it is quite common to consume a fish dish in the morning in Asian countries, this is seen as appropriate only as lunch or dinner in European countries. Wine is acceptable in European countries as a drink for lunch or dinner, but it is not acceptable as a drink in the morning. Furthermore, certain combinations of food and drinks are favoured in different cultures, for example white wine and fish, and red wine and beef (Douglas 1984, 249-75). Lastly, certain food or liquids may be consumed because of specific values ascribed to them, such as bread and wine consumed during the Holy Communion.

As far as waste management practices are concerned, I consider (de facto) primary and secondary waste disposal as well as reuse, reutilisation and material reprocessing as universal categories. As analytical categories they are fixed in character and can be used for playing off similarities and differences between societies and cultures, for instance in terms of the organisation of waste management practices, or the kind of disposables and recyclables, as well as changes within a given society across time. As socio-cultural and historic categories, however, they are elastic or 'different in content or definition' (Casey 1996, 29, 30).

⁵³For other universals drawing on behaviour cf. e.g. Bell 1992, 69, Casey 1996, 29. Whereas Bell argued that ritual has been deemed universal on the level of action or 'activity', Casey considered 'funeral practices', that is 'the marking of death and the remarking of the life' as universal (cf. Gennep's (1960) last phase of his three phase model; Malinowski 1983 (universal social function of funerary rites)).

⁵⁴*Changes over time*: Elias 1992a.

Recycling processes may occur, for example, for economic reasons or to generate a symbolic object. Similarly, attitudes towards, and social acceptability of, waste disposal practices may vary from socially acceptable dropping of cigarette filters to socially unacceptable littering. The interpretation of waste management practices may also depend on which stage of the process is stressed; the conceptualisation of recycling, for example, may be as diverse as destruction and creating anew.

Having introduced discarding and recycling practices as universal behavioural activities, it is now necessary to define and conceptualise them (I.2.3), because definitions of these terms offered in the literature are slightly different, depending on the perspective and aims of the studies.⁵⁵ Following this (I.2.4), I am able to present a new model of waste management.

I.2.3 Terminology

Waste disposal practices

In this thesis two different characteristics of waste disposal processes are distinguished. The first concentrates on the degree of formality and intention involved (waste and de facto waste).⁵⁶ In fact, this category is a combination of Schiffer's term 'de facto refuse' (material, including tools, facilities and structures, *abandoned at the use location* but still having a perceived use value) and 'provisional refuse' (waste which has a perceived recycling value and is, therefore, *stored in areas which are not intensively used*). The second focuses on the relationship between the location where an object or item became waste and the location at which it was disposed of (primary and secondary waste):

location / formality	de facto waste disposal	waste disposal
primary waste disposal	deposition of objects at location in which they were produced	dumping of objects at location in which they became waste
secondary waste disposal	deposition of primary de facto waste	dumping of primary de facto waste
tertiary waste disposal	deposition of secondary de facto waste	dumping of secondary de facto waste

Fig. 3: Categories of waste disposal

⁵⁵*Different concepts:* e.g. Dunnell 1999, 245 (waste as use of energy for something other than reproduction) and Treister 1996, 266 (recycling as technological redistribution).

⁵⁶*Intentionality of depositional processes:* e.g. Donderer 1991-2, 193-195. *Contra:* Hill 1995, esp. 2.

In terms of formality and intention

De facto waste disposal involves the passing of artefacts and materials retaining some functional or other value, out of the sphere of active use without being formally discarded. The processes leading to de facto disposal include negligence, deposition, abandonment, discharge of bodily waste, *l ss* (cf. cat. 157), accidents, ritual breakage, symbolic destruction (Hdt. 8.55), ritual deposition (cat. 33), and natural causes such as earthquakes, floods and erosions. Substances and items which may be called de facto waste include metal deposits close to foundries which have never been emptied, katadesmic spells found in wells and graves, foundation offerings, grave goods, buried corpses, unfinished statues and building blocks left in quarries, human faeces and urine, and shipwrecks.⁵⁷ De facto waste disposal may be further distinguished with respect to the degree of intentionality involved. While abandonment, for instance, involves a decision making process, loss and accidents do not involve any intentionality. Waste disposal, by contrast, denotes the formally and intentionally discarding of artefacts and ecofacts for a variety of reasons, including ascribed characteristics, like pollution or dirt, or being inappropriate to carry out its given utilitarian function. Disposal activities include activities such as littering, throwing away in order to get rid of something (cat. 296), dropping of small items, and burning. (De facto) disposal may have symbolic implications or may be practised with the explicit aim of making a statement or constructing a symbolic object. Throwing bad eggs and overripe tomatoes at politicians, for example, is understood in Germany as an action expressing disrespect and classifying the politician as being no better than rubbish. Under certain circumstances it might appear to be appropriate to recycle (de facto) waste.

A study on waste management strategies focusing on discarding actions has to place emphasis on waste disposal while disregarding de facto disposal to a large extent. However, whenever recycling processes are conceived of as a waste management method, de facto waste and its deposition is also of importance. Particular attention is drawn in this context to the discharge of bodily waste of humans and animals as well as the creation of by-products, such as chaff, leather and metal scraps etc. The former is important for the Eliasian framework evaluating the degree of self-restraint (cf. Elias 1992a, 174-94), and the latter for their treatment as recyclables.

In terms of location

Following Schiffer (1972, 161-2; 1987, 58; cf. I 2 1; Ault 1994b 73-4) disposal patterns can also be distinguished with respect to spatial disposal patterns. Primary waste is discarded either at the location of its production or at activity-related locations, like scrap metal in a

⁵⁷*Stored scrap*: e.g. Risberg 1992, 33-40. *Foundation offerings*: e.g. Ar. Pl 1198, Pax 923, and scholia ad loc; Sinn 1985; Burkert 1988 32; Kron 1992a, 622 with n. 622. *Katadesmic spells grave goods and corpses*: cf. III.5.4. *Unfinished statues*: e.g. Blümel 1969. *Blocks*: e.g. Amandry 1996, 114. *Bodily waste*: cf. II.3.6; III.3.3. *Shipwrecks*: Gibbins 2000; in preparation.

bronze foundry. Secondary waste has been moved, principally by maintenance/cleaning activities, to another location or was disposed of straight away in a location other than where it was used or produced, for example by dumping in rivers, wells, or in abandoned parts of a building. Most (de facto) waste excavated by archaeologists is secondary (de facto) waste. The distance at which secondary (de facto) waste disposal occurs from the living sphere depends on the degree of self-restraint, the future plans, or the value attributed to the discarded objects. For instance, waste considered dangerous or polluting can be expected to be disposed of at a greater distance from the settlements, while garbage which is to be fed to pigs can be expected to be collected close to the pens. The depositional history of (de facto) disposal may not end with secondary (de facto) waste disposal. When sacrificial waste collected in a *bothros* was emptied and spread over the ground of a sanctuary, or when Delos was purified from tombs (Hdt. 1.64; Th. 3.104), tertiary (de facto) waste disposal occurred.

Waste

Consequently, waste is conceptualised in this framework as a collective term for anything formally discarded, because it is broken, is inappropriate for carrying out certain assigned utilitarian or symbolic functions, has fulfilled its purpose, is regarded as dirty or polluted, or is unwanted, and anything which passed out of the sphere of active use, because it is considered unwanted or useless at a particular time in a particular situation, such as left-overs and by-products. Waste is generated at every stage of material use.⁵⁸ As Hodder and Thompson pointed out (cf. I.2.1; Lynch 1990), waste is a social category. It may include material and immaterial things, such as potsherds, ideas, and words (cf. the phrase 'to talk rubbish'). It also comprises objects and items as well as architectural features, places, *poies* or people, who Thompson (1970, 918; 1979, 93) summarised under the term 'social rubbish'.

The definition of waste given in the Council Directive 75/442/EEC (article 1, paragraph a) - 'waste shall mean any substance or object (...) which the holder discards or intends or is required to discard' - is attractive for an archaeological analysis of waste management for two reasons. First, the consideration of intentions implies that discarding is a result of cognitive and classificatory processes. Second, it mediates between Thompson's subjective and Douglas' absolute understanding of valuations and categories (cf. I.2.1). Whereas the first part of the legislative European framework accounts for the individual conceptualisation of value- and classification-systems (Subjective waste), the following passage on the requirement to dispose of an item accounts for a culturally and socially agreed value-system, or legislative provisions issued by the state (Objective waste). The

⁵⁸Cf. Schiffer 1972, 160 (for de facto waste only); Smith 1976, IX; Bridgewater & Mumford 1979, 3; Murray 1980; Schiffer 1987, 28.

requirement to dispose of waste is nowadays primarily understood in terms of dangerous substances which might affect the public weal and, in particular, the environment.⁵⁹ For an analysis of ancient Greek waste management practices, however, and especially for one taking into consideration the Eliasian framework as well as Corbin's approach, the question of the power relations involved in the construction of cultural and societal necessities and requirements is strategically far more interesting.

As far as substances are concerned, solid waste is regarded the most inclusive term in modern waste management. In fact, solid waste is held to describe the totality of human discard, having 'garbage' (wet organic matters), 'trash' (dry organic matters) etc. as sub-categories⁶⁰:

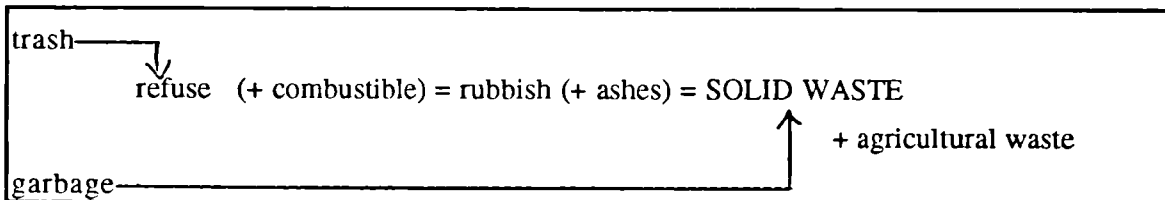


Fig. 4: Classification of solid waste in modern waste management

In everyday life in modern Western European countries, however, people use the term waste with garbage, trash, rubbish, refuse, taint, excrement, and dregs (Lynch 1990, 146). The synonymous usage reflects our modern *Ex und Hopp*-mentality and the increasing degree of specialisation and urbanisation in Western Europe. Thus, we do not use them synonymously despite their different meaning, as Rathje and Murphy (1992, 9) stated, but because they *are* indeed the same to us; they cover both unwanted items and materials with no recycling-value which need to be disposed of.⁶¹

Recycling

In this framework, recycling is defined as the making available of artefacts, ecofacts and architectural features that can be put to some useful purpose and that are either *conceptualised* as waste or *have already been* passed out of the sphere of active use. It is structurally the antithesis of deliberate disposal, in the sense that this activity excludes items and materials from the use-cycle, while recycling makes objects reenter the 'use-cycle'.⁶² The question of whether it is an *entire* object or the *mere material*, for example melted down

⁵⁹Cf e.g. the German *Abfallgesetz* paragraph 1 issued in 1986 and the German *Kreislaufwirtschaft-/Abfallwirtschaftsgesetz* paragraph 3 issued in 1996, which are the German implementations of the European Council Directive, Dieckmann 1995, 170; Schlodder 1997, 1.

⁶⁰Definitions of the terms: cf. app. A.

⁶¹*Transformations of the meaning of trash and junk*: Lynch 1990, 146.

⁶²Koch's (et al 1986, 252) term 'manufacture-consumption-cycle' is conceived of as too narrow for an archaeologically useful definition of recycling, as it tends to exclude the incorporation of entire objects for one more time, such as reused building material. On the term use-cycle cf. Needham & Spence 1997, fig. 1.

metal, which is diverted from waste stream to enter again the realm of activity, is considered to be secondary to the fact that it actually was diverted from the waste stream. Consequently, in this thesis, the term recycling includes reuse (entire objects), although recycling is normally distinguished from reuse.⁶³ The suggestion of Schiffer (1976, 29; 1987, 27) to subsume various recycling processes under the generic term 'reuse' is rejected for three reasons. First, reuse in terms of a mere change in the activity of use seems to exclude alteration of objects and, therefore, tends to exclude material reprocessing from these processes. Second, Schiffer's definition of reuse as a change in the social unit of use, (e.g. when an item is sold, stolen, presented as a gift to someone else,) is difficult to trace archaeologically, unless the objects are not everyday objects dedicated in sanctuaries. Finally, I do not regard reuse in Schiffer's understanding as a waste management strategy, since the sold or donated objects did not pass through the phase of waste. Consequently, I shall use recycling rather than reuse as the most inclusive term in my terminology.

In this framework, I distinguish three different characteristics of recycling actions: as with waste disposal, the first concentrates on the degree of formality and intention involved (de facto recycling and recycling), while the second focuses on the degree of integrity of the form of the object and the extent to which the recycler needs an analytical view (reuse, reutilisation, and material reprocessing; cf. Schildkrout & Pido 1996). The third distinguishing criterion is the stage of the use-cycle, at which an object was recycled (internal and external recycling):

	internal recycling	external recycling
(de facto) reuse	(de facto) reuse at the location in which waste was reclaimed	(de facto) reuse at a location other than where the waste matter was reclaimed
de facto) reutilisation	(de facto) reutilisation at the location in which waste was reclaimed	de facto) reutilisation at a location other than where the waste matter was reclaimed
(de facto) material reprocessing	(de facto) material reprocessing at the location in which waste was reclaimed	de facto) material reprocessing at a location other than where waste matter was reclaimed

Fig. 5: Recycling practices

In terms of formality and intention

The formal and intentional re-assimilation of waste into the use-cycle is called recycling. Potsherds, small bones and votive offerings, which were moved together with earth to level

one more time, such as reused building material. On the term use-cycle cf. Needham & Spence 1997, fig. 1.

⁶³e.g. Ashworth 1991, 324 s.v. recycling, Waite 1995, 3, 34-6.

an area, so that it may serve as a building ground, would be de facto recycled, as they had not been selected with the intention to serve as construction fill.

In terms of integrity of the form

In terms of the integrity of the form, recycling comprises the following three activities: reuse, reutilisation and material reprocessing. Reuse is defined as the using again of waste matters, including items, materials or architectural features without any major changes to their physical form, for a purpose identical or similar to that of their first use. Processes of cleaning and reworking the surface may be the first stage of the reuse process.⁶⁴ As no use modification occurs, this recycling practice does not require much analytical ability from the recycler. It need to be stressed that this definition of reuse is not necessarily a synonym of Schiffer's lateral recycling (change in an artefact's user).⁶⁵ Reuse occurs when building material from a collapsed wall is used to repair it (e.g. cat. 232), when a once-abandoned mine is reopened (e.g. Aperghis 1998, 5), and when old architectural structures served as a foundations for a new building (e.g. cat. 229), or when graves were used for a second time (cf. IV.5.4). When statues representing a god were dedicated to another (Rouse 1902, 391-3, Kunze 1961a, 162 n. 4; Krug 1984, 29-30), this activity may not be called reuse (as the statues were not necessarily reclaimed from the waste stream) but multiple use (cf. app. A). Waste may also be reused to construct a symbolic object. Intentional symbolic reuse is not motivated by plain necessity, but aims, for example, at prominently displaying the reused item. This kind of symbolic reuse, Cerny (1996, 30) termed 'conspicuous reuse'. I argue that symbolic or conspicuous reuse occurred when the Themistoklean city-wall of Athens, consisting of all kinds of destruction debris and grave *stelai*, was rebuilt with the recyclables rather than new and proper building material either in 337-22 or 307 B.C. (cf. IV.5.5, p. 205), probably to create a historical memorial monument.

Reutilisation comprises using items and manufacturing waste for other purposes or in other contexts than their original and, thus, transforming waste to a new social and cultural status. They may be physically manipulated. Reutilised objects include toys made of *astragaloi*, potsherds used as a writing surface, former Greek vases used by the Etruscans as funeral goods, funerary altars functioning as sculpture bases (Smith 2000) and votive offerings or marble chips in construction fills (cat. 35). Reutilisation of a building occurs, when it is converted to another use, for instance, when wells are used for disposing of waste (Schlanger & Wilshusen 1993, 91, 94). When use modifications are not culturally established, the process of transformation is related to creating anew and inventing (Greenfield 1986). Such an example of transforming and inventing took place when Simon

⁶⁴Cf. Schiffer 1972, 159; Koch *et al* 1986, 253 (*Wiederverwendung*); Waite 1995, XII.

⁶⁵Schiffer 1972, 159; 1977, 32-3; 1987, 28, 29. Cf. e.g. Binford 1978, 338 (reuse in the sense of used again by the same person after a period of time); Costin 1991, 19 (reuse in the sense of used again elsewhere).

decided that potsherds with their sharp edges could be used as weapons. (Lys 3.28) As with reuse, reutilisation may be undertaken to generate a symbolic object. It should also be pointed out that reutilisation is not necessarily the same as Schiffer's (1977, 31-2; 1987, 30-2) behavioural category of 'secondary use', meaning use alteration without extensive modification, since objects circulating either in the waste-cycle or the use-cycle can be used for a second time. While the former is indeed a waste management practice, the latter is not and will be distinguished from the former in my framework by terming it multiple use.

Material reprocessing is the treatment of recyclable materials and objects in which they undergo technical or physical processes and procedures in order to recover or reclaim the material they were made of and to create a new item (cf. Darnay & Franklin 1972, 2-3; Waite 1995, XI). Here, energy recovery is subsumed under the generic term 'recycling' (cf. Waite 1995, 7, 167 with n. 9). In contrast to reuse and reutilisation, the value of the object as a cultural artefact and its form are less important than the material it was made of. Therefore, material reprocessing is also called resource recovery in modern waste management. Although material reprocessing is normally seen in connection with metals (e.g. Ottaway 1994), it may occur as well with organic materials (composting and manuring) or clay objects, such as potsherds (temper, for clay vessels) and stone objects (building blocks for *stelai*). Material-reprocessing may have implicit and explicit symbolic meanings. For example, symbolic recycling occurred when the people of Rhamnous carved a cult statue of Nemesis from a Parian marble block, which the Persians had brought along with them in 490 B.C. to make a victory monument, and which they abandoned after their defeat (Paus. 1.33.2-4). As with the Stoa of Zeus Eleutherios in the Athenian *agora*, this recycling practice may be understood as part of the new *polis* ideology focusing on the victory over the Persians and celebrating Greek freedom (cf. Miles 1989, 137; Ehrhardt 1997, 27-9; Hölscher 1998a, 99 with n. 126).

In terms of the stage of the use-cycle

Recycling may take place *within manufacturing processes* ('internal' or 'under-roof recycling'), for example, when the gaps between two stone walls were filled with the manufacturing debris of the stones which were used to build up the walls (Cormack 1999). Alternatively, it may take place *after an item or material is used and discarded* ('external' recycling or 'waste stream recycling' or 'post consumer recycling').

1.2.4 Model

The flow diagram in pl. 3 is a visual representation of my integrated model, which is universally applicable and sensitive to non-empirical dimensions (disposability and recyclability). In their narrowest sense, the terms disposability and recyclability signify the

relative technical ease or feasibility of disposing of and recycling items. Apart from technological knowledge, the availability of raw material may influence recyclability. In a wider sense, however, recyclability and disposability depend, among other things, on dispositional factors, including taboos, the social and cultural realm (medical, agricultural) and context (sanctuary, settlement etc.) within which recycling and disposal practices occur, the social and economic status of a person intending to dispose of and recycle, the particular situation they were in (war, peace etc.) and the particular relationship this person has developed to the object under discussion.⁶⁶

Its starting point is the moment, when artefacts, materials, architectural features or even people were regarded as waste and, thus, entered the waste stream. Processes leading to the passing out of the use-cycle range from natural processes, including earthquakes, flood, erosion, loss, breakage, abandonment, and negligence, to disposal and conceptualisations of objects as polluted. Processes constantly producing waste in the sense of by-products and left-overs include manufacturing or food preparation processes. On the other hand, repair may prevent items and architectural features from being shifted to the waste-cycle.

The treatment of waste matters depends on factors termed recyclability and disposability. They determine whether and how waste matter was discarded (dumping, burning etc.), deposited for future use (open, closed, underground collection facilities etc.) and recycled (reuse, reutilisation etc.). They also influence the social acceptability and valuation of disposal and recycling practice. Disposability comes into play in this model three more times: when it seems necessary to relocate primary, secondary, or tertiary waste, when dumped waste should be burned, and when stored waste is dumped or burned. Recyclability influences as to whether and when dumped or burned waste is regarded a recyclable. Scavenging may be immediately followed by recycling practices, as in cat. 296, depicting Marsyas picking up the *aulos* Athena threw away. Alternatively, the gathered materials may be kept separate with a view to be of some purpose in the future (de facto waste (disposal)). Recyclability is also involved in the process of making a decision as to whether finds (de facto waste) from an earlier period dug up accidentally in the course of earth-moving operations were redeposited (cat. 103) or re incorporated into the use-cycle, for example as amulets (Kron 1992a, 632 with n. 109)

⁶⁶Discussions on modern recyclability fail to see this second level, cf. e.g. Koch *et al* 1986, 276; 383-8; Henstock 1988, 3.

I.3 Application

I.3.1 General

My model allows us to classify and structure data related to waste management strategies in any society, including ancient Greek society. Such a structure is the first step towards a systematic analysis of waste management practices. This model can be used for a range of applications. One is a quantitative approach aimed at visualising preferences for specific recycling and discard practices of certain classes of items and materials at a certain place and a certain time. Low rates of reuse of metal votives and disposal of metal objects at the archaic sanctuary of Zeus at Olympia as opposed to a high rate of metal reprocessing at the classical sanctuary of Zeus at Olympia, for example, would be visualised as in pl. 4.

This model can also be used to highlight similarities and differences, of discard and recycling practices, of specific material culture categories, between periods, realms, contexts, places, urban and rural *poleis*, different types of sanctuaries (panhellenic, extra-mural etc.), sanctuaries of different deities, geographical regions, individuals, social situations, etc. If a comparative analysis of the waste management of potsherds in archaic sanctuaries, *agorai* and cemeteries revealed that potsherds were disposed of three times as often in sanctuaries than in cemeteries, while potsherds were reutilised in cemeteries nearly as often as in *agorai*, but much more frequently than in sanctuaries, these results could be visualised as in pl. 5.

I.3.2 In this thesis

In this thesis, I analyse ancient Greek discarding and recycling activities within the parameters of context, material culture category, time and, occasionally, region (cf. fig. 6).

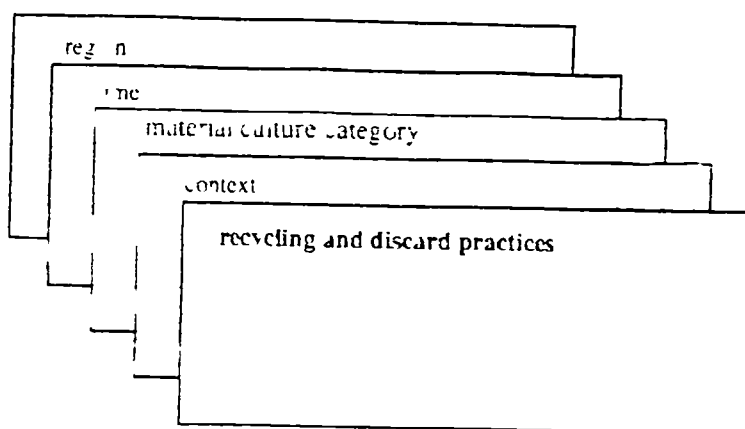


Fig. 6: Variability

I discuss waste management practices in an exemplificative rather than a statistically valid way. Thus, I can only use the model presented here to visualise contrastive *tendencies* between contexts, material culture categories, time and places and geographical regions respectively, which will have to be tested later in quantitative studies. Similarities and differences of waste management practices are described and interpreted with respect to the contexts of sanctuaries, settlements, *agorai*, and cemeteries with a view to highlight to what degree concepts of the sacred and the profane had an influence on the composition of the waste stream, the organisation of waste management and finally codes of conduct. I also discuss waste management practices with respect to different material culture categories, including potsherds, *ostraka*, organic waste, sacrificial, slaughter and consumption waste, water, coffins and burial vessels, votive offerings, architectural features, and the dead. I aim at shedding light on the great range of ways in which these items and materials were used, as well as on routine waste disposal practices resulting in a high disposal and recycling rate.

Waste management practices are also analysed within the parameter of time. The time-span considered ranges from the Homeric to the classical period. The standard periodisation deriving from political history is used except for the Homeric period. Thus, the Dark Age is dated from c. 1,100 to c. 700 B.C. (Snodgrass 1971), the archaic period from c. 720 to c. 480 B.C. and the classical period from c. 480 to c. 323 B.C. Changes in the social structure may occur slowly and may or may not coincide with political events (e.g. Pomeroy 1997, 12). Therefore, the division into Dark Age, archaic, and classical is to be understood as labels having a communication value (contra Sallares 1991, 46). In this thesis, the society and time described in the Homeric epics is referred to as the Homeric period. This separation was considered methodologically necessary, as the epics are an 'organic amalgam', partly based on the experience of the 'Gleichzeitigkeit des Ungleichzeitigen' (simultaneity of the unctemporary; cf. Sherratt 1990; Raaflaub 1998, esp. 188), partly based on issues and patterns of life, modes of conduct of different regions (e.g. Laser 1983; Wöhrle 1996, 158-61; Raaflaub 1998, 187 (with further references)), whose different level cannot easily be distinguished.

Given my focus on the formation of the *polis*, I exclude the Minoan-Mycenaean period, at one end of the scale, and the Hellenistic period, at the other. The Minoan-Mycenaean period is neglected because the societal, political and religious structure of Bronze Age society is fundamentally opposed to the Iron Age *polis* society. Whereas the Minoan-Mycenaean society is oriented towards a single leader, the ideal *polis* consists of the distinct but interacting spheres of the gods, the humans and the dead (e.g. Bérard 1983; Morris 1987, 192; Hölscher 1998a, 24). The concentration of political and religious power within a single centre in the Minoan-Mycenaean period, and the physical and conceptual polarisation of political and religious power structured the organisation and usage of urban

space: whereas Mycenaean society is oriented towards a single centre, the palace, the Greek *polis* is structured around sanctuaries, *agorai* and cemeteries (Hölscher 1998a, 24-5).

The Hellenistic period is ignored, because the Hellenistic age is seen as a period of heavy transformations caused by Alexander's vision of a universal, cosmopolitan empire from the Aegean world to the Indus River, to the northern shores of the Black Sea and the Sahara in northern Africa, unified by Greek language and culture. His empire not only irreversibly altered the socio-political systems by replacing the Greek model of the *polis* as a local, independent city-state, with an internationalising approach to the entire world as a *polis*, but also changed religious forms by religious reformations and by the introduction of Eastern cults.

As a final step, variability of waste management practices are examined in different places and geographical regions, which give rise to different codes of conduct. The regions tackled in this study include mainland Greece, the western coast of Asia Minor as well as southern Italy and Sicily. Compared with the other three parameters, regionality has no high priority in this study. In fact, regionality differences are only considered in section IV.2.1 to show that votives were also recycled in sanctuaries other than the sanctuary of Zeus at Olympia.

I.4 Organisation

This thesis is divided into five chapters. The chapter following the opening section will focus on the interrelation of waste with dirt-theory. Having shown that dirty waste is just one category of waste (II.1), I shall explore the category of dirt in ancient Greece (II.2). Changes in the understanding of dirt across time will be summarised under II.2.1, before the interconnectedness of dirt with waste will be explored in four respects. Firstly, I shall examine the traditional relationship between what Thompson (1970, 918; 1979, 93) called social rubbish, and practices of waste disposal and recycling practices (app. B; II.2.2). Secondly, I will shed light on the significance of and attitudes towards bodily wastes in ancient Greece (II.3). Thirdly, I shall discuss the influence of concepts of public places on waste disposal regulations and other legislation issued by *polis* authorities to keep public places clean (app. E; II.4.2). Lastly, I will examine changes of personal and spatial cleanliness across time (II.4.1-2; cf. appendices C-E) with a view to comparing the results of these analyses with (de facto) disposal practices of organic waste (III.2.4, 3.4, 4.3, 5.7).

(De facto) waste disposal and (de facto) recycling processes will be discussed in separate chapters (chapters III and IV). Since the conceptualisation of items and substances as waste logically precedes recycling, (de facto) waste disposal patterns will be discussed first. In

Chapter III deals with disposal processes and activities on a conceptual basis and examines them in all five contexts, as defined under I.3.2. Organic waste and *ostraka* have been found in sanctuaries, settlements, *agorai* and cemeteries. Therefore, I have chosen these categories of waste to analyse variations in the patterning of these data across different contexts and, as far as possible, across various periods. The contextualised discussion of other material culture categories, including votive offerings, sacrificial, slaughter and consumption waste, the dead, graves, and grave *stelai*, is more restrictive in terms of the range of contexts considered. With respect to the context of sanctuaries, I shall aim to show that votive offerings and sacrificial waste were indeed disposed of, and that disposal practices were common in ancient Greek sanctuaries. I also want to establish cemeteries as public places, at which discarding was an everyday practice. The way in which waste disposal was either organised by the *polis* or regulated by rules or *nomos* is not treated in this chapter, as it is already discussed under appendix E and summarised under II.4.2 and II.5. Under III.6 the observations will be summarised, considering especially the extent to which the development of the *polis* had an influence on changing concepts of cleanliness, disposal methods and the organisation of dirty waste, such as κόπρος.

Chapter IV tackles recycling processes and practices. As with chapter III, this chapter will be opened by a discussion of concepts and categories of recycling activities (IV.1). This chapter has three main purposes. With respect to Vickers (1992a, 53) statement, implying that material reprocessing was the only practised recycling method and that metal was the only substance worth the effort of recycling, I shall discuss the wide range of objects and items which were recycled in ancient Greece and the different ways in which recycling was performed. Since my analysis is not statistically valid, I can only pinpoint tendencies in the preference of recycling strategies and of certain recyclables for certain purposes, realms or contexts. For the sake of the comparative perspective, I shall discuss potsherds as well as sacrificial, slaughter and consumption waste in all five contexts. Special attention will be drawn to the procedure of ostracism, as my framework allows the shedding of new light on a process, which is held to be one of the best studied political activities of ancient Greece (IV.4.1). Recycling of architectural features also occurred in all contexts, but it does not seem to have been a practice of strategic importance for a contextual study of waste management. Instead, I will focus on the contexts of *agorai* and cemeteries, where recycling of architectural features became respectively a concern of the *polis*, or a not yet acknowledged everyday practice. As with disposal practices, I will give special consideration to the analysis of recycling practices and recycling rates at sanctuaries and cemeteries, which have previously not been associated with recycling practices in archaeological research. Whereas in chapter III infrastructure of waste management practices was discussed for the perspective of waste disposal, it shall be discussed from the perspective of recycling in this chapter. Next (IV.6), the results will be summarised.

have previously not been associated with recycling practices in archaeological research. Whereas in chapter III infrastructure of waste management practices was discussed for the perspective of waste disposal, it shall be discussed from the perspective of recycling in this chapter. Next (IV.6), the results will be summarised.

Finally, a general review will gather together all the threads and draw the necessary conclusions (chapter V). Particular attention is made to the evaluation of the discussed data with respect to the following three questions: (1) to what degree the development of the Greek *polis* transformed disposal and recycling methods and their organisation, (2) whether disposal and recycling processes served for creating a conceptual difference between the sacred and the profane, in particular between sanctuaries and settlements and cemeteries, (3) which items and materials as well as realms and contexts had high recycling quotas.

The main text is followed by eight appendices and the plates. Appendix A is a glossary and explains *termini technici* and Greek terms used in this thesis. The second appendix gathers background information on the issue of 'social rubbish' (Thompson 1970, 918; 1979, 93), which is summarised under II.2.2. As noted above, appendices C to E discuss in detail cleaning substances used in ancient Greece (C), changing personal cleaning methods and attitudes towards personal cleanliness (D), and spatial cleanliness across time and contexts (E), the results of which are summarised under II.4-5. In appendix F, I show how my framework can be applied to analyse social aspects of the disposal of the dead. In appendix G, a selection of Greek texts and inscriptions relevant for an analysis of waste management practices shall be discussed, while the archaeological sources are listed in appendix H.

II. CONCEPTS AND ATTITUDES TO WASTE, DIRT, AND CLEANLINESS IN ANCIENT GREECE

In this chapter, I will explore concepts of and attitudes towards waste, dirt, and cleanliness, and their intersection. This will provide the background against which ancient Greek waste management practices has. To begin with, it is necessary to point out that this study equates cleanliness with the modern concept of 'hygiene', (which may be defined as the 'motivation behind actions which aims either to defeat and prevent diseases or to stop spreading them and thus contribute to a good health condition) only when cleanliness was unequivocally linked to concepts of health.¹ This will enable me to bypass the trap of judging Greek standards of cleanliness according to modern European standards and to explore the otherness of ancient Greek culture.² That the degree of otherness may not be underestimated illustrates the statement by Pausanias (5.14.1) that ancient Greeks built an altar for Zeus Apomyios (Zeus Fly-averter) at Olympia in order to keep flies away (rather than changing the date of main sacrifices from mid-summer to an earlier or later date, when there are less flies, prohibiting the disposal of organic matter within the precinct or building a ramp as it was done in the Artemision of Ephesos (cf. pl. 6)).

I will focus on Greek understandings of waste with a view to finding out whether my analytical category 'waste' was also a cultural category for the ancient Greeks (II.1). More specifically, I shall explore whether ancient Greeks had a generic term for anything broken, unwanted and unnecessary, which would, therefore, allow to perceive as commensurable manufacturing and agricultural by-products or bodily emissions (II.1.1). I will also examine a range of concepts and values for waste in ancient Greece (II.1.2-9). A more contextual approach is restricted to bodily wastes, exploring their value and meaning with respect to a range of socio-cultural realms (II.3).

Particular emphasis will be placed in this investigation on waste as a social phenomenon. The social value of 'dirt' and 'cleanliness' is significant for an analysis of waste and primary, secondary or tertiary disposal, because the discarding and the relocation of waste was often motivated by the need to get rid of objects or substances, or to tidy up (cf. III.1.1-2). Dirt

¹*Definition:* Hemker 1993, 256. *Greek concepts of hygieia as health:* e.g. Kornexl 1970. *Significance of water and bathing in the Corpus Hippocraticum:* e.g. Ginouvès et al 1994a.

²*Contrastive etymology:* Thomas 1990; Hill 1993. *Judging the past from modern standards of hygiene:* Sol 1.12 (McDonough (1999, esp. 477 showed that Solinus wrongly inferred hygienic reasons for earlier regulations related to cleanliness); Flacelière 1977, 368 (Ancient Greeks were not clean, because they did not brush their teeth, used no handkerchiefs and spat on the ground.); Rist 1997, 28 (interpreting Plato's concern for the existence and well-being of future generations of citizens in terms of 'living in a clean and healthy environment'). *Constructing the past after the present:* The explanation of Greek waste disposal regulations and cleaning activities of the Babylonians in terms of hygiene prevented Owens (1983, 45) and Hemker (1993, 256) from exploring alternative meanings of cleanliness and cleaning practices in Greece and the Near East. Similarly, Crouch (1993, 311, 321) assumed that the cleaning activities of Greek athletes ensured their health and well-being and that the bathing facility at Gortys was a health facility.

tolerance and standards of cleanliness are directly linked to the disposal of organic waste (in particular human urine and faeces) in two respects: firstly, changes in spatial disposal patterns of organic waste go hand in hand with changes in the sensibility of dirt and cleansing practices (e.g. Vigarello 1988; Corbin 1994). Secondly, the application of different standards of cleanliness in different realms and contexts, such as sanctuaries and cemeteries, affect the disposal pattern of waste matters. Consequently, it is necessary to look into changing concepts of dirt (II.2), different standards of dirt across realms (II.3-4), contexts (II.4.2; app. E) and personal cleansing practices across contexts (II.4.1; app. D). These changes and differences will be interpreted within the modified framework of Elias, linking changes in the personality structure with forms and scales of social interaction. The results of this analysis of conceptual and behavioural changes (II.2-4) will be played off against the results of the chronological analysis of disposal practices of organic wastes in a range of contexts.

II.1 Concepts and categories of waste

II.1.1 Towards a Greek concept of waste

For a study of waste management, it is of primary importance to know whether ancient Greeks had a specific and/or abstract term for anything discarded, unwanted or broken.³ The question whether Greeks used equivalents to the English terms 'waste', 'rubbish', 'refuse', 'litter' and 'discard', will be addressed from three standpoints: (1) I will examine the terminology of prohibitions regulating the disposal of dirt and waste matter. (2) I will critically discuss a significant and representative selection of English translations of ancient Greek texts using modern abstract terms like 'waste', implying that generic terms indeed existed in ancient Greece. (3) With respect to the term 'discard', which draws on the verb 'to discard', I shall discuss Greek words and constructions built of and referring to the activity of 'throwing out/in/away'. This will enable me to find out whether these kinds of Greek words had a more general application, and whether they were applied to different types of waste matter.

(1) The majority of classical disposal regulations specified the materials which should not be dropped in public places. If a place was to be kept free of more than one waste matter, the second most important one was also explicitly listed, while the others were referred to as 'anything else'. For example, the so-called Piraios-inscription of the late fourth century B.C., which prohibits defecation and the disposal of earth and other substances in the *agora* and the streets of Piraios, reads: (one should) [μήτε] χοῦν κα[ταβά]λλειν μήτε ἄλλ[ο] μηδὲν μήτε] κοπρῶ[να χέει]ν.⁴ The phrasing of the legislative prohibitions seem to

³I used Schenkl 1883a and Sengebusch 1875a as a German-Greek and the on-line English-Greek dictionary of the Perseus project, which is based on LSJ.

⁴IG II² 380.37-9 (Athens, 320/19 B.C.; cited in Oikonomides 1988, cf. app. G.1). Similar phraseology in the legislation Sokolowski 1962, no. 50.3-5 and no. 53.7-9; 1969, no. 57.6-7. Cf. also IC IV no. 73A 9-

point to the facts that the Greeks had no specific term for 'waste', and that they preferred to denote the specific substance which could not be tolerated in a specific context. Thus, different kinds of materials were not commensurable in the abstract modern sense. The common phrase μήτε ἄλλ[ο, however, indicates that ancient Greeks generalised to a certain extent, although not to the degree that is common amongst modern Western Europeans.

(2) English translations of Greek literary texts imply that ancient Greeks had a concept of waste similar to that of modern Western Europeans. However, a closer look at the Greek terms reveals that the translations are vague and tend to reflect our modern understanding of these substances. Four representative examples may be sufficient to show that the process of translation has been dominated by the principle of constructing the past based on today's standards. The first passage is from Plutarchos' description of Kimon's life (13.7), and reads as follows: 'χάλικι πολλῇ καὶ λίθοις βαρέσι τῶν ἐλῶν πιεσθέντων'. If χάλιξ and λίθος are translated as 'rubbish' in accordance with Isager & Skydsgaard (1995, 106), Plutarchos then states that Kimon provided funds to buy rubbish, which would constitute the foundations for the Long Walls in the swamps and marshes. In accordance with LSJ, however, Plutarchos denotes the exact type of material used, namely 'rubble' and 'stone'. To conclude, Plutarchos gives an exact account of the materials, while Isager and Skydsgaard seem to have regarded rubble and stones as valueless materials and, therefore, preferred the more generic term 'rubbish'.⁵

In the second example, the substances 'κόπρος' and 'ὑποστρώματα τοῦ ἵππου', which were to be removed from the stables and should be brought to the countryside (X. *Eq* 5.2; cf. app. G.1), used to be translated as 'dung and litter'. In a strict sense, however, 'ὑποστρώματα' means 'matter spread out below' (*Einstreumaterialien*); I do not see why the more interpretive translation 'litter', involving notions of dirt, should be given preference over a more neutral expression.⁶

The third example deals with the different translations suggested for 'συρφετός' in Hesiod's *Works and Days* (606); this was brought in together with χόρτος (hay (Schirnding

10; *Epicr. fr.* 5.8-9 (Kock; ap. Ath. 262D; cf. app. G.1), where the slave referred to the food remains as 'τὶ τοῦτων'.

⁵Cf. *Ar Eq.* 902 'οἷοίσι μ', ὧ πανοῦργε, βωμολοχεύμασιν ταραττεις', which was translated as 'with what idle trash will you seek to ruin me, you wretch' (Perseus) rather than 'with what other obscure jests will you seek to trouble me, you wretch'; *Nu.* 630 'ἄττα μικρὰ', rather 'dinky snippets' than 'teeny table-scrap' (Perseus); *D.* 34.9 ((...)) 'ὅτι οὐκ δύναίτο ἐνθέσθαι εἰς τὴν ναῦν τὰ χρήματα') rather 'because it was not possible to make money out of the cargo than 'because this trash was unsalable' (Perseus); *D.* 18.127 ('ταῦτα' rather 'for this was the kind of things' than 'for that was the sort of rubbish'); *X. Oec.* 20.11 'ἅ δ' ἐκποδῶν ἀναιρεῖται, (...)' rather 'What he pulls up and clears away' (Pomeroy) than 'and the rubbish he removes' (Perseus); *Mem.* 3.10.14, where the 'gold-plated trash' is actually 'κακόν'.

⁶Cf. *X. Mem.* 1.3.6, where ταῦτ' was translated with 'trash' (Perseus) to stress the aspect of unwantedness, whereas a more precise translation would stick to 'they'.

1991) or weeds from the fields (Gallant 1982, 114)) as fodder for draught animals. In accordance with LSJ, which lists under 'συρφετός' 'anything dragged or swept together, sweepings, refuse, litter', some authors have translated it as 'litter', while others have regarded stubble or chaff to be more appropriate.⁷ In my point of view, however, stubble is not an adequate translation, as it is not attested elsewhere that stubble was collected and used for fodder (cf. IV.3.4). More significantly, stubble does not fit into the pattern of 'anything dragged or swept together'. Hesiod deals from line 597 onwards with grain. Therefore, it is more reasonable to regard 'συρφετός' as a by-product of threshing and winnowing, namely 'chaff' or 'straw'. Since the meaning of 'χορτοπάτητος' as threshed straw is attested in the second or third century A.D., συρφετός may be best translated as 'chaff' and 'χόρτος' as 'straw.' This example clearly shows the need for a new edition of LSJ, which is still based to a great extent on the German work of Francis Passow of the 18th century A.D. (cf. Gare 1997, esp. 208, 210).⁸

English phrases such as 'to talk rubbish', 'I think it's trash', 'what rubbish!' or 'it seems completely rubbish', were used as translations for the Greek terms οὐδεν λέγεις, '(παρά-)ληρείς', 'κόβαλα', 'ἀτεχνῶς γε παμπόνηρα φαίνεται', 'φλυαρέειν' and 'ῥθλος καὶ φλυαρία'.⁹ These translations grasp the overall meaning, but the translations given in LSJ for the Greek words in fact place emphasis on meanings such as 'making no sense', 'nonsense' and 'to play the fool'.¹⁰ In the English and German language, 'nonsense' and 'rubbish' both draw on the lack of value, which made it possible to use them synonymously in translation. I would be cautious, however, in assuming *a priori* that such a link also existed in ancient Greece.

⁷*Litter*: Evelyn-White 1954; Gallant 1982, 114. Cf. translation of συρφετός as refuse by Mair 1955 of Call. *Ap.* 109 and as rubbish by Fowler 1960 for Plu. *Memorab.* 811E. *Stubble*: Gallant 1982, 114. *Chaff*: e.g. Schirnding 1991; Isager & Skydsgaard 1995, 106 n. 13, 114.

⁸On too collective translations of exact Greek terms cf. κάρφος in Arist. *HA* 560B, which most likely did not denote 'rubbish' which hens kick about all round them, but rather more concretely 'dry sticks, stalks, straw or twigs' with which hens build their nest. I also do not agree with Robinson (1946, 180) that 'σκῶρ' meant 'refuse', but rather think that it denoted the concrete substances 'dung' or 'odure'. The exact meaning of 'χληδός', which Kallikles is said to have thrown onto or into the street (χληδος ἐκβαλων εἰς τὴν ὁδόν; χληδος εἰς τὴν ὁδὸν ἐκβεβλήσασι) and which raised the level of the road and, thus, increased flood hazard, is a bit more difficult to determine (D. 55.22; cf. D. 55.27, 28 (αναχώννεσθαι), 29 (ἀγανακτεῖν τῆς ὁδοῦ (...) μετεωροτέρας)). Translations of the term 'χληδός' include 'rubbish' (Page o.J) and slime or mud (Scholion explaining χληδος as τὸ πλῆθος τῆς ἰλύος (a large amount of mud, slime impurities)). I think that sweepings fit best here, as they fulfil the criteria of coming out of the house of Kallikles and of being thrown out on a regular basis, as the Perfect of αναχώννεσθαι indicates.

⁹Translations of 'οὐδεν λέγειν': Ar. *Nu.* 644, 781. '(Παρά)ληρεῖν': Ar. *Av.* 572; *Ec.* 1001; *Pl.* 50; *Ra.* 809; *Isoc.* 12.23; 15.199. 'Κόβαλα': Ar. *Ra.* 104. 'Ἀτεχνῶς γε παμπόνηρα φαίνεται': Ar. *Ra.* 106. 'Φλυαρέειν'/ῥθλος καὶ φλυαρία': *Isoc.* 5.75; D. 35.25. Translation of φλυαρία as 'trash' cf. also Pl. *Grp.* 519A; *Smp.* 211E.

¹⁰Following LSJ, 'ληρός' means 'nonsense', 'κόβαλα' 'knaveish tricks', 'ἀτεχνῶς γε παμπόνηρα φαίνεται' 'it seems without art/utter and bad', and 'ῥθλος καὶ φλυαρία' as 'idle talk and nonsense' or 'complete nonsense' and 'φλυαρέειν' 'to talk nonsense' or 'to play the fool'.

(3) Greek nouns, drawing on verbs meaning 'throwing out/in/away' etc. (cf. III.1.14), seem promising candidates for finding abstract Greek terms of waste, if waste is understood as a generic term for discarded materials and or materials intended to be discarded. To my knowledge, there is no Greek term comparable to 'discard'. The noun 'ἐκβολάς' or 'ἐκβολή', for instance, was used (in accordance with LSJ) only in the sense of a miscarriage or an abortion, but not in the sense of 'anything thrown out/away'. Similarly, 'ἀπόθραυσμα' describing a part of an object which has fallen off, is not attested for waste resulting from partition (cf. II.1.2), but for a part which has fallen off a metal votive offering.¹¹ Furthermore, 'καταβλητικός' is a term only used among wrestlers, and 'καταβλητέον' seems to have meant 'one must sow or pay' rather than 'one must not throw out'.

In the following paragraphs, I shall explore substances and items that can be called waste, based on my analytical terminology. More specifically, I will look for Greek terms for substances and items which result from separating (temporarily or permanently) the wanted and desired from the unwanted and unnecessary (II.1.2-3, 5) and that are dirty and intolerable matters (II.1.3-5), droppings (II.1.8) and broken items (II.1.9). From a conceptual perspective, I will consider waste in the sense of the German 'Abfall' (II.1.2, 5, 7-9), of refused and rejected matters, and in the original sense of the Latin word *vastus* (II.1.6) as well as the concept of garbage (II.1.3-4).¹² Furthermore, I will discuss the use of 'waste' in ancient Greece as a means to enact and construct power over people (II.1.3-4), to signify social values as diverse as piety, prosperity, status, superiority and death (II.1.6-7, 9), and to supply food for the dead (II.1.8).

II.1.2 Waste as a result of partition

Separating the desired and wanted from the unwanted and unnecessary results in waste-products. This process occurred in rituals such as sacrifices, when the god's portion was separated from the sacrificial victim and when the inedible parts were not consumed. It also occurred in different aspects of everyday life, such as bodily care, agriculture, manufacturing processes, as well as food-processing and consumption. The waste matters resulting from these processes are commonly referred to as 'processing residues', 'left-overs' or 'by-products'. They included the substance kept in the vessel with the graffiti σαπρά (putrid, rotten), or clipped nails, since the cutting of nails is described by Hesiod as cutting away the dry from the green (αὖρον ἀπὸ χλωροῦ τὰ μνεῖν) and in one of the Pythagorean rules, as separating the dead from the living.¹³

¹¹Schol. Ap. Rhod.

¹²Original meanings of waste, Abfall, refuse, and garbage: cf. app. A.

¹³Rotten: Lang 1978a F 169, cited in Oikonomides 1986, 55 no. 15. Nails: Hes. Op. 741-2; Bohm 1905 no. 49, cited in Parker 1996, 295 n. 69. Cf. II.3.2.

In an agricultural context, winnowing may be conceptualised as a process of separation and chaff as a left-over, since the wind was used to separate the grain (καρπός, σίτος) from the chaff (ἄχνα, ἄχυρα, συρφετός). Although on the one hand, Homer appears to have understood chaff as a by-product resulting from separating (κρίνειν) the grain from the chaff, Xenophon, on the other hand, appears to have understood chaff more as an unwanted by-product: he describes threshing as an act of cleansing, aiming to remove the impurities from the grain (ἐκ τούτου δὴ καθαροῦμεν τον σίτον λικμῶντες) and, therefore, resulting in clean corn (καθαρόν σίτον).¹⁴ Apart from winnowing, stripping all excess leaves to prevent the ripening of grapes before the vintage (ψιλοῦν), may be conceptualised as a process of removal of parts of a plant. For Xenophon (*Oec.* 19.19), this removal recalled images of the autumn, the time of the year when trees shed their leaves. Apart from chaff and removed leaves, the term 'waste' may be attributed to straw (χόρτος), another left-over from threshing and winnowing, and ἀμόργη, the watery by-product of olive oil production.¹⁵

Waste deriving from non-agricultural production processes include left-overs and by-products from manufacturing activities such as sawing (παράπρισμα, πρίσμα), polishing (ἀπορρίνημα, ἀπότριμμα), hewing (πελέκημα), scraping or carving (ξέσμα, παράξυσμα, ἀπόξυσμα, σμίλευμα), sawing wood (φορυτός) and cutting leather (κοσκυλματία).¹⁶ It also includes matter from silver melting processes (οἱ ἐκβεβημένοι σωροί; X. *Poroi* 4.2; cf. app. G.1). Manufacturing waste had a symbolic side, as well as a material one. Xenophon, for instance, associates human manufacturing processes with dross dumps and set them against virgin and silver-laden hills, while Aristophanes (*Ra.* 881) uses the term 'wood shavings' in a metaphorical sense to describe junk literature (παραπρίσματ' ἐπῶν).

Residues from food processing and consumption, primarily consisted of the inedible or unwanted parts. Fish, for instance, was often served without a head or a tail (cat. 50).¹⁷ Food debris included inedible (small) bones (ὀστάρια), refused and half-eaten food called 'τὰ λειφθέντα', 'τὰ λείψανα' or 'τὰ ὑπολειπόμενα', left-overs, and food fallen from the table (τὰ πίπτοντα τῆς τροφῆς; cat. 47)¹⁸ Wine which was not drunk was termed 'κότταβος', 'λαταγή', 'λαταξ', 'περίσσωμα', περίπτωμα', πηλός' and was sometimes thrown away by playing κότταβος (cat. 140).¹⁹

¹⁴Hom. *Il.* 5.499-502, but 19.221-3 (there is much straw and little harvest'); X. *Oec.* 18.6.8, 9. *Threshing floors*: Whittaker 1999.

¹⁵Ἀμόργη: Thphr. *CP* 1.19.3 (unwanted); 6.8.3.

¹⁶Φορυτός: LSJ. *Other terms*: Schenkl 1883b; Sengebusch 1875b, s.v. Abfall

¹⁷Mithaikos of Sicily advises in the first cookbooks to cut off the head of the ribbon fish (Clearch. F59 (Wehrli; ap. Ath. 518C)).

¹⁸*B nes*: D.L. 6.46. *Τὰ λειφθέντα*: Antiph. *fr.* 89.3 Kock; ap. Ath. 6.262C); Epicr. *fr.* 5.6 (Kock; ap. Ath. 262D, cf. app. G 1. *Τὰ λείψανα*: Ath. 541E. *Tablescrap* : cf. II.1.8.

¹⁹e g. Ath. 666B-8B; Soph. *fr.* 928; Arist. *Rh.* 3.3; Schol. Ar. *Pax* 1244B; Callim. *fr.* 102. Cf. III.1.3.

It is noteworthy that the classification of left-overs and by-products as waste was often only a preliminary stage. In fact, waste resulting from material processing was frequently deposited with respect to its future use. Such treatment is depicted on an early fifth century black figure vase, where a cobbler appears to throw leather scraps into a vessel, perhaps intending to recycle them at a later time (cat. 111). A passage by Xenophon (*Oec.* 18.2, cf. app. G.1) indicates that some ancient Greeks already cared for their by-products in the first stage of their occurrence: in this passage he advised his readers to cut the stalk of grain close to the soil when it is short (so that the straw would be more useful), and half way when the stalk is tall. This cutting method would have the advantage of reducing the work and effort (πόνος) of reapers and winnowers by not winnowing something that they do not need (οὐδὲν προσδέονται). It would also enable the farmers to make use of the stubble left in the soil, by burning it and throwing it back into the soil as fertiliser.

II.1.3 Dirty waste

A specific kind of unwanted waste is dirty waste. In contrast to waste resulting from partition, dirty waste is a less neutral category of waste, as it is associated with the negative value of 'dirt'. Dirty waste may occur when consumables fall down into the dirt (e.g. D.L. 6.35). It also occurs when dirt is cleaned out and disposed of. Thus, ritual by-products caused by removing μίασμα such as water polluted by washed down dirt (καθάρματα, ἐκκαθάρματα, ἀποκαθάρματα, καθάρσια, καθαρμοί, λύματα, ἀπολύματα) and the (dirty) remains of a non-customary animal, including ποτιπίαμμα (fat (?)), ἴκνυς (ashes (?)) καὶ τὸ ἄλλο λῦμα (and the other filth), may also be called dirty waste.²⁰ Furthermore, dirty waste also included human and animal excrement (κόπρος) and ash (σποδός, ἰπνών) removed from sanctuaries, substances resulting from the cleaning out of stables and pens (κόπρος, ὑποστρώματα, αντλία), a piece of bread used to wipe one's greasy hands clean before throwing it to the dogs (ἀπομαγδαλία or ἀπομαγδαλίας) and sweepings (χλῆδος, κόρημα, συρμάς, συρφετός, φορυτός).²¹ Although the disposal of polluted materials used to be permanent, dirty waste seems to have been recycled to a certain extent (cf. IV.2.4).

The negative connotation of some categories of dirt made them ideal metaphors. Plato (*Grg.* 489C), for example, drew on the negative aspect of συρφετός in the phrase ἐάν συρφετός συλλεγῆ δούλων, in order to characterise slaves as the offscourings, the scum, or the dregs of society (cf. app. B; II.2.2). Since refuse can also be used to described

²⁰Water: Eitrem 1915, 120 with n. 2. Animal: Sokolowski 1962, no. 115A.26-31, cf. app. G.1; Parker 1996, 332-51.

²¹Kopros: app. E, s.v. sanctuaries. Spodos: app. E, s.v. sanctuaries. Amygdalia: Eitrem 1915, 120.

'worthless or outcast' social groups (Murray 1910a, 359), the meanings of *συρφετός* and refuse overlap.

Alluding to Thompson's (1970, 917; 1979, 7, 97) saying that rubbish is in the eye of the beholder, it can be stated that dirty waste is in the eye of the beholder. Diogenes Laertios (6.35) impressively documents the fact that different people placed varying values on the same thing based on their individual concepts. He states that Diogenes, the Cynic, convinced a man who had dropped a loaf of bread and was at first ashamed to pick it up (*ἐκβαλόντος δ' ἄρτον τινός καὶ αἰσχυνομένοι ἀνελέσθαι*), to do so. In this particular passage, the value-system of the Cynics is effectively played off against the dominant code of values (cf. D.L. 6.61; app. B). The value of objects is also dependent on the specific context in which they are used. This can be demonstrated by the example of infertile cows, which were highly esteemed sacrificial animals (Hom. *Od.* 10.522; 20.186), but of no use in cattle-breeding.

Legislative prohibitions for waste disposal in public places often dealt with *κόπρος*, *ὄνθος* and *σποδός*. Their traditional translations, as dung (*κόπρος*, *ὄνθος*) and ash (*σποδός*), have come under discussion in the course of new finds of dung collecting facilities on the one hand, and Németh's several new interpretations of *IG I³ B.11* on the other.²² Although complementary meanings have been added to *κόπρος* and *σποδός*, Németh suggests a radical new understanding of *ὄνθος*. As these substances are of crucial importance for my thesis, I will critically discuss the new meanings suggested. I begin with the least problematic term, namely *κόπρος*.

If *κόπρος* is examined in terms of its composition, it did not only denote animal and/or human excrement, but also almost any fresh or decomposed organic substance.²³ The term *κόπρος* meaning almost exclusively decomposing vegetable matters, seems to have been typical for Xenophon.²⁴ There is only one passage in his works, in which it may have actually meant a mixture of dung and vegetable matters.²⁵ On the basis of ethnoarchaeological studies and new finds of dung collecting facilities (*κοπρόνες*), some scholars have pointed out that this definition of *κόπρος*, as fresh or decomposed organic matter, is still too narrow; they argue that *κόπρος* could mean all types of waste deposited into dung-collecting facilities, including food production and consumption waste, by-

²²K *prones*: e.g. Ault 1993; 1994a; b *Helat mpedon inscription*. Németh 1993; 1994a, b.

²³Mixture of human and animal faeces: e.g. Vatin 1976, 555; Ault 1994b, 198. *Decomposed matter*: Foxhall 1998a, 38.

²⁴X. *Oec.* 16.12 (fallow grass ploughed under as fertiliser); 17.10 (first green shoot from the seed ploughed in); 18.2 (burnt stubble thrown into the soil); 20.11 (weeds soaked in water). Cf. Carroll-Spillecke 1989, 44; Pomeroy 1994, 325; Foxhall 1998a, 38. *Contra*: e.g. Németh 1994a, b.

²⁵X. *Oec.* 18.2. Cf. Pomeroy 1994, 325.

products of olive pressing, broken vessels, sherds and roof tiles.²⁶ This point of view finds support in ancient literary and epigraphic sources. Xenophon, for instance, mentions potsherds in his description of cleaning out a dung-heap; in the lease for the Garden of Herakles of about 300 B.C., the term κόπρος was used for all kinds of waste found on the land, which had been apparently misused as a rubbish pit.²⁷ If κόπρος is examined in terms of its function in agriculture, it may be translated as manure.²⁸ In the Homeric phrases ἀπὸ κόπρου and ἐς κόπρον it seems to have meant 'stable', and on other occasions 'dirt'.²⁹

Besides the term κόπρος, one also comes across the term ὄνθος; Németh suggests that this was not another word for *kopros*, but instead was used to explain waste that had been inside the intestines of sacrificial animals.³⁰ Németh's new interpretation, which seems to have been accepted among philologists and epigraphers, has two important implications: his notion of two different terms for excrement, inside the body (κόπρος) and outside the body (ὄνθος), implies that the body played a crucial rôle in structuring the world (cf. e.g. Tilley 1999, 133-73); although κόπρος may have derived from sacrificial and non-sacrificial beasts (and humans) and was used as manure in agriculture, ὄνθος was exclusively derived from sacrificial animals and was not used in agricultural processes.

I find Németh's interpretation of ὄνθος convincing, with respect to the Sacred law from Vari and a passage by Antigonos.³¹ This testifies that, in different written genres and at different times, *onthos* was indeed understood as bodily waste from inside the intestines of sacrificial victims. However, I think that there are three good reasons to argue against the absolute validity of Németh's suggested inside-outside dichotomy. First of all, according to LSJ, the term ἄκοπρος means 'with little excrements in the bowels'. This implies that *kopros* could be associated with faeces still inside the body. The second point of criticism focuses on Németh's reasoning in the case of the passage in the *Iliad*; this allowed him to interpret the substance on which Aias slipped and which filled his mouth and nose as 'excrement

²⁶e.g. Amouretti 1986, 6; Hodkinson 1988, 49; Jameson 1990, 110 n. 6. *Roof tiles*: cf. III.3.2.

²⁷X. *Eq.* 5.2, cf. app. G.1. X. *Oec.* 19.13, however, cannot be taken as evidence that κόπρος contained πηλόν, since it is formable clay, not already burnt clay (differently Pomeroy 1994, 325). Cf. a fifth century fragment by Strattis (*fr.* 43 (Edmonds)) which reads 'nor a treasure thrown away on a dunghill' and may refer to broken and useless objects thrown away on a dunghill. For the mixture of broken pans with household waste, although not *kopros*, cf. Hermipp. *fr.* 47 (Edmonds). *IG XII* 8.265. Cf. Vatin 1976, 559-64; Alcock *et al* 1994, 149.

²⁸e.g. O'k 1905, 1756; Dillon 1997, 125.

²⁹*Stable*: Hom. *Il.* 18.575; *Od.* 10.411. *Dirt*: e.g. Hom. *Il.* 24.164, 640; Ar. V. 394; Ra. 366. Cf. III.1.9 (pollution and assault); Artem. 2.26 (in dreams); Hom. *Il.* 18.26 (κόνις as dirt).

³⁰*Synonyms*: e.g. Laser 1983, S140; Kosian 1997. *Different meanings*: Németh 1994a; b; Dillon 1997, 127 (following Németh).

³¹*Vari*: Sokolowski 1969, no. 9, cf. app. G.1. Dillon's (1997, 127) interpretation and understanding of this Sacred law as an order to clean ὄνθος along with the inner parts of the sacrificial animals out of the cave would allow to understand *onthos* as excrement dropped by animals and, thus, as a synonym of *kopros*. However, I think due to the construction of the inscription it is more plausible to understand ἔχσο not as 'towards the outside (of the sanctuary)', but rather as 'outside'. - Antig. *Mirab.* 140 (Keller).

coming from the intestines'.³² On a methodological level, I think it is not sound to favour one ancient author over another without giving valid reasons. More specifically, I do not see on what grounds Németh rejected the scholia, which identify ὄνθος with κόπρος, while favouring Hesychios, who clearly distinguished between the two substances. Furthermore, I am not quite sure why Németh's paraphrased version of Hesychios' definition of ὄνθος, as 'excrement of the already processed animals', should exclude dung dropped by sacrificial animals. Finally, I disagree with Németh's (1994b, 59, 63) interpretation of the passage μεδ' ὄνθον ἐγβ[αλῆν], from the Hekatompodon decrees (Sokolowski 1969, no. 3.11, cf. app. G.1), as a prohibition for cleaning the intestines of sacrificial animals within a certain area at the Athenian Akropolis. I think that the main obstacle for his interpretation is the verb of the passage: a construction with the *verba composita* of βάλλειν, would mean to prohibit the dropping, casting or throwing down/away/into/out etc. of certain substances in or into a certain area, and not their cleaning in this area (cf. III.1.14). When the cleaning of intestines is implied, as in the case of the cave of the nymph in Vari, no construction with βάλλειν is employed, but instead one with νίζειν. Furthermore, the verb βάλλειν seems to have been almost exclusively used in connection with solid waste and only rarely, if ever, in connection with liquid waste (cf. III.1.5, 10). Therefore, I consider it more reasonable to translate the phrase μεδ' ὄνθον ἐγβ[αλῆν] as a prohibition for throwing dung away.³³

According to LSJ, the meaning of σποδός included wood ashes, embers, and sacrificial ashes. Németh suggests that σποδός in the Sacred laws of Epidauros and Delos did not mean ashes in a general sense, but, more specifically, ashes of sacrificial animals.³⁴ If these regulations prohibited the dumping of the remains of the god's share within the *temenos*, they would be relevant for my examination of the treatment of sacrificial waste in sanctuaries. More importantly, they would shed light on the otherwise not attested perception, that sacrificial ashes were not sacred, but rather disturbing, and therefore were to be disposed of outside of the boundaries of *temenoi*. I think, however, that Németh's reinterpretation stands on a weak ground. It is based on the assumption that *spodos* and *kopros* are both 'waste of the sacrificial animals', which itself is based on two assumptions whose validity Németh has failed to prove. One of the *a priori* assumptions is that *kopros* meant 'animal waste from sacrifice' and the other that substances named in any given legislation must have derived from the same source, in this case the sacrificial beast. In terms of the first basic assumption, I will show under III.2.4 that the term κόπρος, when mentioned in the Sacred laws did not always refer to animal excrement of sacrificial victims. As to the second basic assumption, it is equally possible that all the terms *kopros* and *spodos* had in common was their dirtiness. On the basis of this criticism, I think it is reasonable to argue

³²Hom. *Il.* 23.775, 777, 781; Németh 1994b, 63 with n. 40.

³³Cf. Wachter 1910, 134; Jordan 1979, 45; Németh 1993, 78 (*Μὴ τὸ liegenlassen* (sic!)); Tolle-Kastenbein 1993, 62-3; Kosian 1997; Schäfer 1997, 57 n. 478.

³⁴Sokolowski 1962, no. 24.8-9 (2nd century A.D.), no. 53.7-9 (3rd century B.C.); Németh 1994b, 62-3.

that the Epidaurian and the Delian decrees may have regulated the disposal of ashes resulting from cooking and 'camping'.³⁵ Consequently, I will not consider these regulations in my discussion on disposal patterns under section III.2.3.

To conclude, I will use κόπρος in the wider sense of human and animal faeces, which may have inclusions, such as sherds, when lying on the streets or gathered in collecting facilities. In the 'agricultural' treatise of Xenophon, κόπρος may also include vegetable matters. I will use the substances ὄνθος and σποδός, mentioned in Sacred laws, in a wider sense as dung and ashes, unless it is clear from the context that they have to be understood in the particular way of 'excrement inside of intestines' and 'sacrificial waste' respectively.

II.1.4 'Objective' waste

'Objective' waste is a term used by modern environmental lawyers to define substances and items that are to be removed and disposed of, because the law classifies them as dangerous for the well-being of the community under discussion (cf. I.2.3). In ancient Greece, κόπρος, ὄνθος and σποδός played a crucial rôle in the normative framework of some ancient Greek *poleis*. Thus, these substances may be called objective waste. Aristoteles (*Ath.* 50.2) states that the Athenian *polis* authorities also regulated and saw to the removal of corpses of humans who had died on the streets. Other kinds of 'objective waste' included illegally dumped earth and sweepings on the streets, since these required redeposition (e.g. *IG II²* 380.37-8, cf. app. G.1; D. 55.22, 27, 28).

II.1.5 Dangerous waste

There is another special kind of waste: dangerous waste. The driftwood mentioned in the myth of Hermes Peripheraios may be classified as dangerous waste.³⁶ According to the myth, the fishermen of Aenos were so afraid of the driftwood which they were unable to split or burn, that they dumped it in the sea, so that it would never come back (cf. III.1.2, p. 110). Furthermore, it seems reasonable to call purificatory waste dangerous (λύματα and ἐκκαθάρματα), since great precaution was taken in its disposal.³⁷ For instance, λύματα were carefully disposed of in the sea, a place of no return, or fed to ghosts or dogs.³⁸ The author of the Hippocratic treatise on the Sacred Disease *Hp. Morb. Sacr.* 6.362 (Littré) even instructed physicians to hide a part of the remains of the purification in the earth, to

³⁵*Cooking*: e.g. Sokolowski 1969, no. 3.11 (= *IG I³* 4B.6; cf. app. G.1). *Camping*: e.g. Dillon 1997, 123-4. - I also interpret *IC IV* no. 73A.9-10 in this way (cf. app. G 1).

³⁶*Call. Iamb.* 7, *Dieg.* 7.32- 8.20; *POxy* 661.45-50, col. 2, cf. app. E; Kerkhecker 1999, 182-96.

³⁷*Meaning of ἐκκαθάρματα*: Paus. 41.1. *Its treatment in the sanctuary of Paros*: Sokolowski 1969, no. 108.1-2, cf. app. G 1. *For similar Near Eastern and Roman cases*: e.g. Burkert 1992, 62.

³⁸*Sea*: Hom. *Il.* 1.314. Cf. III.1.2. *Ghosts and Dogs*: Eitrem 1915 120.

cast another in the sea and to carry the third into the mountains, so that no one would be able to touch them or step on them.

II.1 6 Visible (de facto) waste

In contrast to dangerous waste, which requires permanent removal at some point in time, the effects of visible waste were based on its physical presence at a particular place and on its visibility (cf. III.1.6, 9-11). The constantly growing ash heaps, consisting of the greasy ashes of sacrificial animals, may be conceptualised as visible de facto waste, since they give evidence of continuous religious activities and mark a sanctuary (Stengel 1972, 18-9). The mortgage *horoi*, mentioning dung-hills as financial securities, appear to support their interpretation as visual markers of prosperity.³⁹ The dumps (ἐκβεβημένοι σωροὶ) close to the silver mine, which may have contained dross or other waste from the processing of silver, were taken by Xenophon (*Poroi* 4.2, cf. app. G.1) to indicate the mining of silver. In fact, the dumps gave Xenophon the impression that the supply of silver would last forever, because even after a long period of intensive exploitation of the silver-laden hills, the dumps were small in size, whereas the hills were still impressively large. In the case of urine and excrement, discharged at public monuments for display, visibility and publicity were cleverly used to make a clear, non-verbal statement (cf. III.1.9).

Visible waste allowed for a range of interpretations. For Timoleon, the reign of the tyrants of Syracuse would not end unless all their buildings, monuments and statues lay in ruins.⁴⁰ It may, therefore, be concluded that the destruction debris of Syracuse symbolised for Timoleon the permanent victory over a political regime, on the one hand, and its removal from common memory, on the other. Thukydides (1.10.2.) places emphasis on the actual amount of destruction waste and states that it provides evidence for the power and wealth in the destroyed city. Finally, in the Oath of Plataia (Linden auf 1997, 73 n. 203), the destruction debris of the Persians was treated as a memorial of their barbaric behaviour in 480 B.C.

II 1.7 Waste as a metaphor for wealth

A particular form of visible waste is linked to conspicuous consumption and social prestige. Massive accumulations of consumption waste (ἐκφατνιζομένων σωρευμάτων), for instance, were held to signify abundance and surplus of food.⁴¹ Athenaios (542F) draws

³⁹*Horoi*: Fine 1951, 8 no. 16. *Dung heaps as visible waste disposal*: Hodder 1987b, 430-1.

⁴⁰Plu. *Timol.* 22; Diod. 70.4; Cor.Nep 2.3. Cf. Ar. *Nu.* 396 (punishment of Zeus); Diod. *Hist.Lib.* 11.38.5 (symbolic destruction of Gelon's tomb).

⁴¹Poseid. *fr.* 227 (FGH (ἐκφατνισματα)); Ath. 540C, but not mentioned in Ath. 210D. *Social role of conspicuous consumption*: Fehr 1979, 14 91 n. 74; Davidson 1998, 238-42.

on this symbolism when he describes the lavishness of the daily banquets of Demetrios of Phaleron, by stating that Moschion, his cook and caterer, who received as gratuities to sell what was left over (τὰ λείψανα), 'was able to buy three apartment houses.'

Some Romans and Greeks did not rely on philosophers and writers to immortalise their opulent banquets and symposia in poetry or prose, but chose the medium of mosaics. The idea of depicting the floor of an *andron* as an οἶκος ἀσάρωτος, i.e. an unswept floor/house, goes back to Sosos in Pergamon (Plin. *NH* 36.184). The Roman derivations show all kinds of food debris, including fish bones, a chicken's claw and shells, which were usually thrown onto the floor, and fruit, such as nuts with leaves and cherries, which may have fallen during the meal (cat. 47). The depictions of an οἶκος ἀσάρωτος lay claim to be an unswept floor, since the mosaics were set where food waste would accumulate during a feast. The illusionistic ambition of the mosaic makers can also be deduced from the naturalistic representation of the tablescraps. The mosaics were, however, not accurate representations of banquet floors, since the tablescraps were evenly spaced and not randomly scattered. Furthermore, the mosaics only give single examples of all food types thrown away at a lavish banquet, and avoids repetitions of food residues. Moreover, the exact demarcation of shadows create the impression of a still-life. At this second level of interpretation, the waste may not just be seen as waste from an opulent banquet, but also as a metaphor for prosperity, abundance, and luxury. As the representations of food remains were on display for a long time, the οἶκος ἀσάρωτος may have stood more generally for the ability to live a lavish and sumptuous life-style.

II.1.8 Waste as food for the dead, demons and dogs

In other cases, food waste was not understood in terms of wealth and luxury, but as food for other' beings. For example, in mythical times, which were evoked in tragedies, tablescraps, i.e. τὰ πίπτοντα τῆς τροφῆς, which had fallen on the ground during a meal, would not be picked up, but instead would be devoted to dead friends.⁴² This practice seems to have been common not only in tragedies: passages from classical comedies, in which food is seen to fall to the ground, but is not picked up, seem to allude to the same practice.⁴³ Consuming food waste that has fallen to the ground was also explicitly forbidden in the Pythagorean rule of purity, which reads 'Do not pick up scraps that fall from the table; they belong to the heroes.'⁴⁴ This prohibition was probably a measure of precaution in order to protect the Pythagoreans from spirits and demons, which according to the Pythagorean world view were

⁴²E. fr. 664 (Nauck; ap. Ath. 427E, cf. app G.1). *Non-Greek example*: Luby & Gruber 1999.

⁴³Ar. fr. 273 (Kock; ap. D.L. 8.34, cf. app G.1); Th. 401-4, cf. app. G.1). Cf. Cratin fr. 273 (Kock; ap. Ath. 728D); Clem.Al. *Protr.* 2 19.3.

⁴⁴Bohm 1905, no. 19, cited in Parker 1996, 295 n. 66.

omnipresent.⁴⁵ Another example is the case of the demons of Phigaleia and the dogs of Sparta, which lived on ἀπομαγδαλία (the crumb or the loaf on which the ancient Greeks wiped their hands at dinner, and which was discarded afterwards).⁴⁶

II.1.9 Waste as a sign of death

Another association of waste - with death - is given by Artemidoros (1.66) in the second century A.D. He interprets a dream of a broken drinking cup in terms of death for a member of the dreamer's family or a friend, claiming that the drinking cups 'symbolize those who greet us with a kiss.' The symbolism of the broken drinking cup illustrates the strong sense of community and friendship forged in the symposion, which becomes also evident in the term 'the cup sacred to friendship' (φιλοτησία κύλιξ or just φιλοτησία; cf. Davidson 1998, 49). It is noteworthy, that a dream of the image of a broken cup did not symbolise the broken ties of friendship, but the death of a drinking companion. This symbolism of sherds, used to express 'the end of something', is also used in the German metaphor of a 'heap of sherds' (*Scherbenhaufen*).

II.1.10 Conclusions

Ancient Greeks had both an abstract and specific term for anything polluted or dirty (μίασμα, λῦμα), but they do not seem to have had a specific and abstract word comparable to the English terms 'waste' and 'discard'.⁴⁷ This clearly shows that ancient Greeks had the ability to think in abstract terms, but abstract concepts of waste were of no social relevance (cf. Lévi Strauss 1947). The lack of a general concept of waste in the modern sense does not mean that ancient Greeks did not think of some substances as being commensurable and interchangeable. This conclusion was based on the facts that (1) the meanings of κόπρος (green manure, animal dung, human urine, garbage mixed with potsherds, garbage on dunghills, manure; cf. II.1.3) varied, and that (2) terms like sweepings (χλῆδος, κόρημα, συρμάς, συρφετός, φορυτός), droppings (τὰ πίπτοντα), left-overs (τὰ λειφθέντα, λείψανα, ὑπολειπόμενα), anything thrown away in cleansing (κάθαρμα, κάθαρσις) existed. These collective terms suggest that for Greeks, activities such as sweeping, dropping, cleansing, and separating were more important in classifying objects than discarding. (3) The phrase μήτε ἄλλ[ο occurs in classical and Hellenistic disposal legislation. The main conclusion of this linguistic analysis - that ancient Greeks did not regard discard as a homogenous category - should be confirmed by the analysis of spatial disposal patterns. More specifically, it can be

⁴⁵Pythagorean demology: Burkert 1964.

⁴⁶Eitrem 1915, 120.

⁴⁷On the meanings of miasma cf. Parker 1996, esp. 1-17. Less abstract probably ῥύπος (Hom. *Od.* 6.94).

expected that different types of waste were not thrown away together in a particular location to be collected for secondary disposal, but were kept separately.

II.2 Modes of dirt

Dirty waste is only one category of waste, but nevertheless an important one. Here, I discuss in more detail the socially constituted value of 'dirt' which is ascribed to objects and substances, and give them a brief overview of changing perceptions and conceptualisations of dirt and their symbolic significance. Finally, I shed light on the intersection of dirt and dirty waste with the social and economic status of ancient Greeks, with a view to analyse the crucial rôle that dirt and dirty waste played in both reflecting and reflexively constructing ancient Greek society.

II.2.1 The material-concrete and the immaterial-abstract

It is generally agreed that beliefs on dirt and pollution concepts (κόνις, πίνος, λῦμα, μίασμα, ἀκομιστή), as well as the understanding of cleanliness and purification (καθάρσις, κομιδή) saw changes from the Homeric to the classical period. There is, however, a debate currently taking place, regarding the quality and the degree of changes involved. Some scholars stress the qualitative and perceptual difference of dirt between the works of Homer and Hesiod on the one side, and the archaic authors on the other. While in the Homeric period dirt was only used in a concrete sense, without any social, religious or other symbolic implications, the archaic period saw the emergence of a new, immaterial conceptualisation of dirt.⁴⁸ Dodds (1957), for example, notes that in the course of the archaic period, a drastic change in beliefs on pollution took place from a culture of shame, to one of guilt. Other scholars, such as Vernant (1996), Parker (1996) and Wöhrle (1996), stress that pollution and purification received little emphasis in the *Iliad* and the *Odyssey*, but that they were not therefore a largely post-Homeric invention. As a result, they claim that no such drastic change in the perception of dirt and pollution had occurred.

For the evaluation of the nature of this change it is, therefore, necessary to see whether dirt indeed had no symbolic overtones in the Homeric epics. I think that there are two - possibly three - good reasons for arguing that the concept of cleanliness or dirtiness had spiritual and ritual aspects in the Homeric period. First of all, as I have shown in appendix D, personal cleanliness, notions of dirt and cleanliness, (that is, the absence of physical dirt,) had strong social connotations. Moreover, the defilement, which Odysseus cleansed away (καθαίρειν) from his *oikos* with sulphur and fire, must have been immaterial, because the visible traces of

⁴⁸Gillies 1925; Moulinier 1952; Rudhart 1958, 51; Stengel 1972, 28-9; Mije 1991a; b; Neumann 1992.

the murder of the suitors had already been removed by his servants (Hom. *Od.* 22.478-9).⁴⁹ It is also possible that the quality of water employed for the public ceremony of purification ἀμελυμαίνοντο καὶ εἰς ἄλλα λύματ' ἔβαλλον (Hom. *Il.* 1.308-16), before proceeding to sacrifice to Apollo, indicates an understanding of dirt within a framework of religious thought.

A more explicit symbolism of dirt was employed by the early-archaic writer Semonides (*fr.* 7.4 (West)) who focuses on the linkage between physical dirt and disorder, wildness or danger (ἄκοσμος; cf. Wöhrle 1996, 164). Although Homer, Hesiod (esp. *Op.* 739, cf. app D) and Semonides treated dirt as a symbolic or metaphysical category, they do not yet terminologically link it to μῖασμα.⁵⁰ The conceptual framework of μῖασμα appears in c 600 B.C., in particular in the works of Alkaios and Solon for the first time.⁵¹ The emergence and use of words stressing the immaterial nature of dirt, such as ἐνθυμία (weighing on one's spirits, cf. Dodds 1957, 46), went hand in hand with the development of such an abstract framework.

In the classical period, and in particular in the tragedies, the immaterial-abstract mode of μῖασμα was stressed. Thus, bad messages had the power to pollute (e.g. *E. Hipp.* 654-5). However, it would be an oversimplification to characterise the changing conception of dirt as from material-concrete (with occasional symbolic connotations) to immaterial-abstract. Such a statement would ignore authors like Theophrastos (19; cf. app. G.1), who played with the moralising mode of physical dirt in his characterisation of δυσχέρειας, nastiness, and Aischylos (*Ag.* 772-4) who, in a masterly fashion, opposed the physical-concrete, social and moral dimensions of πίνος (dirt) and χρύσος (gold) in terms of poverty and wealth, purity and rottenness, goodness and badness. It would also play down the crucial fact that the immaterial-abstract conceptualisation of dirt and pollution of the classical period had strong material-concrete reference points. Three examples may suffice to make this point. The pollution of murder was frequently referred to with the concrete metaphor of blood dripping from the hands of the murderer (e.g. *Hdt.* 1.35.1; *A. Eu.* 52, 280; cf. Vernant 1990, 124-5, 127); Plato (*Ti.* 22D) believed that the pollution present on earth was eliminated

⁴⁹I think that there are three good reasons to believe that the ἄκος κακῶν cleansed away with the sharp-smelling substance sulphur (θεειον, θήιον) was the violation of the guestfriend-hospitality-codex and the stain of murder (cf. Laser 1983, P58; Vernant 1990, 129. *Contra:* e.g. Gillies 1925, 73). First, if the righteousness of the bloody deed were beyond doubt, Homer would not have put so much emphasis right from the beginning of the tale at legitimising Odysseus' deed by claiming that he had the support of Zeus and Athene and by stressing the severeness of the transgressions of the suitors. Second, the metaphor of Odysseus as a lion reinforced the violent savagery of his deed (Hom. *Od.* 22.402-6; cf. Anhalt 1997, 21-2 with n. 18). Third, the hiding of the dead corpses and the revenge planned by the relatives of the killed suitors clearly showed that Odysseus' bloody deed was not regarded by all members of the Homeric society as righteous.

⁵⁰*Homer:* λύματα, κακά, αἶμα, μιάρός, μιαίφανε. *He od:* κακότης, ἄνιπτος. *Semonides:* ἄκοσμος, ἄλουτος.

⁵¹Naumann 1992, 73, add Sol. *fr.* 23.10 (Franyó & Gran 1981a).

(καθαίρειν) by a flood of water; it was considered possible to efface madness through washing and other forms of purification (e.g. *Ar. V.* 118; *S. Aj.* 5, 655).

In summation, it can be stated that in the Homeric period dirt tended to be understood as a material object, with occasional symbolic overtones. In the classical period, however, dirt tended to be conceptualised in immaterial and abstract terms as μίασμα. The emergence of μίασμα as a cultural concept cannot be identified before the archaic period. As Parker (1996, esp. 12, 16) has pointed out, it is difficult to say to what extent changes in the social significance of pollution beliefs took place, since notions of dirt and pollution were stressed to different degrees in different literary genres at different times. It can only be said with certainty that the genre of tragedy and the realm of the sacred were preoccupied with dirt.⁵²

II.2.2 The social mode - a summary

As I have shown in appendix B, dirt functioned as a social marker in ancient Greece. People whose primary occupation consisted in improving the bodily cleanliness of other people, keeping other people's houses clean, removing other people's dirt from cesspools and the streets and/or dealing professionally with dirty substances, such as coal-dust, κόπρος, and perhaps also urine, were at the low end of the social scale (δειλοί). This link can also be found in Europe before World War II, where domestic servants were responsible for the cleanliness of their employers' houses, and when dustmen, crossing-sweeps and chimney-sweeps were recruited from the lower classes.⁵³ The status of the Athenian κοπρολόγοι, which can be translated as 'cesspool/sewage-pickers', or more freely as 'dustmen', is not known. They may have been slaves or free men (cf. app. E, settlements). In any case, this occupation had a bad social reputation and not even Athenian household slaves were keen on doing this work (*Ar. Pax* 9-16). This was mainly due to the stench of the dirt (e.g. *Ar. Pax* 16-25). Keeping sanctuaries clean was not normally regarded as more prestigious than keeping the *oikos* or the *polis* clean. We can conclude, therefore, that the context in which cleaning was carried out did not affect the social reputation of cleaning jobs. A factor that did effect the social ranking of cleaning jobs and, thus, of the people doing them, was the degree of symbolism involved in the cleaning actions. Cleaning practices involving the maintenance of cult statues and the extinction of pollution on a casual basis were prestigious and restricted to people at the upper end of the social scale (cf. app. B, s.v. Removing other people s..., pp. 396-7).

⁵²Archaeological evidence: app. E, s.v. sanctuaries.

⁵³Domestic servants: e.g. Dawes 184, 17, 22, 23, 25, 27, 40, 52-4, 65 (the internal hierarchy of servants was based on the kinds of cleaning job they held. At the bottom of the scale was the lowly scullery maid who cleaned the kitchen, and scrubbed the pots and pans). *Outdoor cleaning*: e.g. Mayhew 1985 (19th century London).

Different forms of dirt, but also waste, and recycling played a crucial rôle in the descriptions of the living conditions and life-styles of the socio-economically underprivileged. Poverty (πενία) seems to have been linked to, among other things, the negligence of bodily care and outward appearance, the consumption of dirty food and 'junk-food', as well as the use of broken and recycled objects no longer capable of their original function. These associations were not restricted to ancient Greece, but can also be found in Europe, for example. Two examples may suffice, of which the first deals with dirt and the second with waste. In the early 1900s, Arthur Shadwell, *The Times*' industrial correspondent, described Bolton, a Lancashire textile town, as a town in which 'poverty, misfortune, illness, vice and dirt occur' (cited More 1995, 173). The chambers of domestic servants were filled with the junk of their employers (Dawes 1984, 76-8).

In ancient Greece, living with dirt was not only associated with the poor, but also with criminals and monsters (cf. app. B, p. 401 with n. 35). Polygnotos employed broken water jars as a metaphor for a useless or incomplete life. In some cases, fully integrated member of Greek society also neglected their physical cleanliness. For example, the rural population whose living conditions Aristophanes could not celebrate enough, and also the *Selloi*, the holy men of Zeus at Dodona. A third group which lived according to the principles of frugality were the Cynics. Since the Cynics deliberately choose to follow these rules, dirt and waste were not economic markers, but rather ideological markers, drawing on the concept of difference and differentiation (cf. app. B, p. 401).

The negative connotations of dirt, filth, broken and rotten goods were effectively employed during various periods and occasions to express disapproval of a person or as an insult. The insults relating to dirt ranged from associating people with dirty manners and habits, and bad odours, to accusing them of accumulating or living in dirt, of being unclean, to insulting people for having internalised dirt to such an extent that they actually were dirt. The tanner Kleon, Aristophanes' favourite target of insults (*Pax* 48, 753; *Eq.* 130-3, 309), was accused of scatophagy, was called a hurler of filthy-minded threats, a person with an intolerable smell, and a churner of filth. These kinds of accusations and insults were also popular in the forensic speeches of Aischines (1.54) and Demosthenes (19.199), where the accused was often defamed and degraded as a foul wretch or an unclean scoundrel.

The comic disapproval of cowards and old-age may be explained in terms of bodily emissions which were 'out of place', that is, dirt according to Douglas' framework. This is a reasonable suggestion because of the frequent references to the lack of control over defecation, resulting in the self-defilement of cowards and old men. In contrast to other archaeologists, who held the lack of free time for political engagements a crucial factor in distinguishing the upper from the lower orders, I argue that craftsmen, in particular, were

liminal figures due to their sudorific work. More specifically, I argue that craftsmen had a low social reputation due to their sweating outside of socially accepted places, such as war and the sports-ground.

II.3 Significance of and attitudes towards human bodily waste

There is never only one, unchanging meaning of and attitude towards a concept or thing, but there is a multivalence of meanings and attitudes instead. Heraklitos (B 5 (Marcovich)) made the same point when he noted that murderers 'cleanse themselves with blood when they are polluted by blood'.⁵⁴ Thus, the meaning of blood ranges from something that defiles to something which purifies (Vernant 1990, 131). The meaning of blood is, however, not *paradoxical*, as Parker suggests, but *different*, depending on the kind of blood and the context.⁵⁵ Whereas sacrificial blood from a virgin or pig was regarded as purifying, human blood shed upon murder was considered defiling. The attitude towards the same kind of blood could also vary, as human blood shed in a legitimate act of killing, such as war, sacrifice or in an accident, was regarded much more neutrally than the polluting blood with which the hands of a murderer were defiled.

In this section, I explore the multivalence of the meanings the ancient Greeks attributed to substances produced and secreted by human bodies, including spittle, vomit, menstrual blood, excrement and urine. On the whole, I treat human body products and their processes of production separately. However, whenever bodily waste was seen as an event rather than a product, I do not distinguish between process and end product. Consequently, I aim to demonstrate that different meanings of and attitudes towards bodily waste and, occasionally, processes of secretion have been emphasised to different degrees in the realms of religion, philosophy, medicine, magic and Dionysos. The realms of medicine, magic and religion are not easy to distinguish, and many definitions have been proposed.⁵⁶ Under the heading 'medicine', I will discuss attitudes towards bodily wastes in the *Corpus Hippocraticum*, whilst under the heading 'religion' I discuss the relationship of waste to the sacred, and under 'magic' the use of bodily wastes in non-rational practices to manipulate the mental, emotional, or physical state of a person, to alter the condition of nature or to gain access to a higher spirituality. I will also consider the parameter of time within the different realms. This enables me to compare different sets of attitudes towards bodily wastes in different realms at a particular time. Apart from social realm and time, I consider both mainstream

⁵⁴For an excellent contextual study on the multiple meaning of beans in Greek society, ranging from dirty (Pythagoreans and Orpheans) to a symbol of democracy cf. Garnsey 1999, 222-5.

⁵⁵Parker 1996, 370-4, esp. 372. Cf. Pan ff 1970, 237, 250 on rotten material an 'ambivalent category', but cf. also Loudon 1977, 168.

⁵⁶*Medicine and magic*: Lloyd 1979. *Religion and magic*: Ferguson 1988; Graf 1997, esp. 35.

views and those of minor groups, such as the Pythagoreans, and those of individuals, such as the various Hippocratic physicians.

II.3.1 Religion

Literary and epigraphic sources illuminate the incompatibility between certain kinds of bodily waste and the sacred. An early collection of rules regarding the treatment of the sacred is given near the end of Hesiod's *Works and Days*. It was probably not the codex of a small religious group, but normative for archaic Boeotian peasant society.⁵⁷ One of the Hesiodic rules instructs men defiled with semen (γονῆ πεπαλαγμένος) to avoid the hearthfire (Hes. *Op.* 732-3). In this case, the concern for semen referred to the bodily processes involved in sexual intercourse. Thus, this rule was concerned with separating the pure fire of the hearth from sexuality. Hesiod also stated that nails should not be cut during divine meals (Hes. *Op.* 741-2). This passage may have aimed at not confusing the sacred and the dead. Another set of rules aimed at the protection of sacred elements, including the sun, the night, sources of rivers leading to the sea, and springs, from being contaminated by urine and excrement.⁵⁸

Hesiod's concern with keeping the sacred separate from sexuality may have been shared by Hipponax (*fr.* 104.20 (West)). However, by the fifth century semen was no longer mentioned as a substance offensive to the sacred (Parker 1996, 294). For the Hesiodic abstinence of bodily products from sacred occasions there is a parallel in the Pythagorean collection of rules for life. This rule was, however, only considered normative by a small group and not by the whole of Greek society (cf. II.3.2). The Hesiodic rules on the protection of the sacred from faeces were relevant in later periods too. There were a couple of archaic and classical prohibitions in relation to the defiling of springs sacred to nymphs.⁵⁹ Other legislation was not concerned with maintaining the purity of nature, but with the purity of public places, such as the excrement-free *temenoi*.⁶⁰

⁵⁷Scholars such as Parker (1996, 292-3) do not ascribe the rules to Hesiod and argue for their restricted validity. They stress that terms like θεῖος ἀνὴρ - godlike, pious- characterize the person who obeys the rules, and also note the similarities with the Pythagorean catalogue of behavioural rules. I believe that the behavioural codex is Hesiodic, as the work of Hesiod and the codex have certain principles in common, including the awareness that gods are omnipresent (Hes. *Op.* 11), constantly change the social and economic status of humans, and punish incorrect behaviour (Hes. *Op.* 3 8, 42, 241-61, 281-4, 330-3). Neither do I believe that the phrase θεῖος ἀνὴρ can be interpreted solely in terms of an exclusive religious group such as the Pythagorians, since Pandora and the race of women (Hes. *Op.* 62) are characterized as god-like.

⁵⁸Hes. *Op.* 726-31 (sun and night), 756-63 (springs and sources of rivers). *Springs as sacred elements/places*: cf. III.3.3 s.v. human bodily wastes.

⁵⁹e.g. Sokolowski 1962, no. 50, 4 (Delos; *kopros*); 1969, no. 9.3-4 (Van; intestines, *onthos*); probably Pl. *Lg.* 764B. Cf. III.2.2; app. D; G.1.

⁶⁰e.g. Sokolowski 1969, no. 3 11 (Athenian Acropolis; *onthos*), no. 67.28-30 (Tegea; *kopros*), no. 115 4 (Thasos; *k pros*); no. 116.14-7, 45 (Chios; *kopros*). Cf. III.2.4; app. D, s v. sanctuary; G.1.

II.3.2 Philosophical movements

Bodily waste plays a significant rôle in Pythagorean and Aristotelian philosophy. One of the Pythagorean σύμβολα or ἀκούσματα prohibits the cutting of hair or nails at festivals, probably so as to keep dead matter from feasts.⁶¹ If so, this rule seems to have been concerned with not confounding the dead and the living. Parker (1996, 296) has pointed out that the whole set of Pythagorean rules were indeed σύμβολα, tokens or passwords, which marked members of the group off from Greek society. Thus, the prohibition on the cutting of nails during festivals also had a differentiating function, to separate the Pythagoreans from the rest of society through different normative behaviour.

Aristotle stated that bodily waste as a useless substance which needs to be disposed of.⁶² In the *Eudemian Ethics*, he discussed bodily emissions in the wider context of friendship (φιλία), with reference to Socrates. More specifically, Aristotle supported the generally held opinion that 'only what is useful is a friend', stating that 'all men actually do pursue the useful, and discard what is useless even in their persons (as the old Socrates used to say, giving the examples of spittle, hair and nails), and that we throw away even parts of the body that are of no use, and finally the body itself...'. It is noteworthy that Aristotle did not use an abstract term for bodily waste in this passage. The linking of bodily waste with uselessness (τα ἄχρηστα), disposal (ἀποβάλλειν; ῥίπτειν) and refuse in a wider sense, can also be found in a passage of the *Historia Animalium*, where Aristotle regards young birds' disposal of their faeces outside of the nest as intelligent behaviour (cf. III.1.5).

II.3.3 (Hippocratic) medicine

Cultural assumptions play an important part in shaping the methods of diagnosing, explaining and curing diseases. From the classical period, medical theory was based on humoral theory and the doctrine of equilibrium and the Aristotelian 'mean' (τὸ μέσον).⁶³ According to humoral theory, disease was conceptualised as the disorder of the humoral equilibrium.⁶⁴ Humoral theory is best documented in Hippocrates' medical theory in the *Corpus Hippocraticum*, which consists of about sixty treatises.⁶⁵ The majority of the medical treatises have been dated broadly to the second half of the fifth and the first half of the fourth century B.C., on the basis of style and anatomical and pharmaceutical knowledge. Only the treatises Περὶ εὐσχημοσύνης, Περὶ ἰητροῦ, and Παραγγελίαι are held to

⁶¹Bohm 1905 no 49, cited in Parker 1996, 295 n. 69.

⁶²Arist. *EE* 1235A; *HA* 8.7 (Balme; cf. app. G.2).

⁶³Problematic relation between philosophy and medicine: e.g. Longrigg 1989. 'Doctrine of the mean before Aristotle': Héritier-Augé 1989, 288; Schubert 1997, esp. 124 with n. 15 (bibliography).

⁶⁴Exceptions: Jouanna 1999, 321.

⁶⁵Fragments of the Sicilian 'school': Wellmann 1901. *Isonomia of powers (δυνάμεις) and blood, marrow and the brain as the centres of disease in the model of Alcmaeon of Kroton*: Schubert 1997, 125. *Stench as disease already in Homer*. Corbin 1996, 245 n. 42.

have been written as late as the first or second century A.D. (Kollesch & Nickel 1989, 7; Wenskus 1996, 719).

Bodily waste played a crucial rôle in Hippocratic theory, both on a practical and on a theoretical level. The practical aspect was far more important, as Hippocratic medicine was therapeutically - rather than philosophically - and scientifically-oriented. On this practical level, bodily wastes were visible signs of changes within the body. Menarche, for example, was the focus of two long treatise on γυναικειά, describing the biological transformation of immature girls into reproductive women. In Hippocratic theory, the process which brought about the onset of female sexuality was the supply of blood to help form the foetus and allow the semen to pass into the womb. The first 'monthly coming-downs' (καταμήνια) simply marked the onset of sexuality in girls (Linders 1972, 58-9; Dean-Jones 1994, 52 n. 32, 55). In order to become a mature woman (γυνή), it was necessary to have given birth (King 1998, 23).

In most cases, the Hippocratics regarded bodily emissions (including tears, bile, cough, sneezes, belching, vomits, flatulence, excrement, urine, sweat, pus, and in the case of women, menstrual blood and lochies) as diagnostic signs.⁶⁶ Consequently, the physicians examined these emissions in order to infer the state of the patient's health and the degree and severity of his or her disease. More specifically, the Hippocratic physician used his senses of sight, smell and occasionally taste to analyse the patient's waste products. These were analysed in terms of their volume, composition, colour and odour (Jouanna 1999, 300-1). For example, a baby's excrement was frequently analysed in terms of its composition and colour, since these best reflect the baby's condition (Arist. *HA* 587). More generally, foul-smelling bodily emissions were deemed an unfavourable sign and the shift, for example, from the acidic to the alkaline condition of putrid matter was held to reflect the increasing imbalance of the humors and the progression of the disease to the point of death.⁶⁷

Owing to the static conception of health and the relationship of bodily discharges with health, one way of affecting the composition of the humors, and thus stabilising or improving a patient's health, was to alter the amount of bodily wastes produced and discharged (Parker 1996, 214-6). The discharge of retained humors (as well as by-products of the 'heating' processes taking place within the body) was considered to be a purging of the body.⁶⁸ This therapeutic method could be brought about by blood-letting, or vapour baths

⁶⁶e.g. *Hp. Epid.* 1.10 (2.668.14-5 (Litré)), 23 (Loeb 1.181); 3.25 (Loeb 7.327-331); 4.43 (Loeb 7.137-9); 5.50 (Loeb 7.191); *Aff.* 2.47 (7.72.1-4 (Litré)), 2.48 (7.72.6-21 (Litré)); 2.49.57 (Litré); *Mul.* 2.115; *Prog.* 2.13 (Loeb), 25 (2.188.6-14 (Litré)), 11 (Loeb), 17 (Loeb 2, 35); *Int.* 47.49; *Coac.* 621; *Hum* 2 (5.478.6-13 (Litré); *Ar. Pl.* 706.

⁶⁷Examples: Jouanna 1999, 300-1.

⁶⁸*Menstruati n.*: Arist. *HA* 521A.1 (Thompson), 523^a9-10. *Faeces*: *Prorrh.* 2.8 (IX.28.2-6); Paus. 10.36.7. *Tears and sweat*: *Pl. Tim.* 83D, 84E. *Vomit*: *Eub. fr.* 126 (Kassel & Austin); Paus. 10.36.7.

for women, and in the case of a number of diseases, including worms and pains in the loins, by vomiting.⁶⁹

Aside from being an analytical tool and a therapy, bodily discharges were, since human dissection was not practised, a significant means for gaining knowledge about the non-visible part of the human body and in formulating hypotheses as to how the human body worked.⁷⁰ The observation of the different liquids that drained out of the body, in both a healthy condition but especially with injuries and various diseases, perhaps led to the formulation of humoral theory. A thorough observation and analysis of bodily wastes were also the basis for theories on the number and quality of the humors, the processes which produced them and the course which they took internally.⁷¹ On the basis of the secretion of menstrual blood, for example, most Hippocratic gynaecologists believed that there was a powerful link between a woman's womb, breasts and the various orifices of her body.⁷²

Most of the gynaecological treatises conceived of menstrual blood and the process believed to produce it as the most distinctive differences between the sexes. The importance of menstrual blood and menstruation for defining women in the gynaecological treatises suggests sex-specific therapeutic approaches. When a woman and a man were affected by the same disease, such as a humid body, the degree of humidity in the male body was reduced by vomiting or dietary and environmental changes, whereas most of the Hippocratic gynaecological treatises focused nearly exclusively on the flow of menstrual blood and women's reproductive organs.⁷³ Menstrual flow was also considered the key to explaining the differences between women and men. Since menstruation was interpreted in terms of the discharge of excessive blood that women could afford to (or had to) lose, the texture of women's flesh was regarded as much wetter, softer and spongier than that of men.⁷⁴ This structural difference led to the belief that women lived closer to illness, but the periodic discharge of an important body fluid made it possible for women to maintain their health more easily than men (e.g. King 1995b, 136). The abundance of blood, seen as a hot substance, in the female body was seen as proof for the cultural characterisation of women as hotter, weaker, softer and more frivolous than men.⁷⁵

Cf. D.S. 17.103.5; Joris 1984.

⁶⁹*Absence of menstruation*: Aph. 5.28 (IV. 542.5-6); *Mul.* 8.440. *General moisture*: Jouanna 1999, 321. *Worms*: *Epid.* 2.2.16; 4.10 (V. 90.5-6, 148.24-150.4). *Pains in the loins*: *Coac.* 2. 304 (V. 650.15-17).

⁷⁰*D ssection* Dean-Jones 1994, 22 n. 72; King 1998, 38 with n. 22.

⁷¹*Number and quality*: e.g. Jouanna 1999, 314-5. *'Cooking' processes*: Kollesch & Nickel 1989, 20-1.

⁷²e.g. *Hp. Nat.Mul.* 3.214 (8.416.3-5 (Littre)).

⁷³*Gender specific therapy and physical development*: Dean-Jones 1994, 114, 120; Jouanna 1999, 311-2. *Parallel physical development in men and woman and same therapy*: King 1995a; Gourevitch 1995, esp. 150; Longrigg 1998, 192, 199.

⁷⁴e.g. *Hp. Mul.* 1.1 8.12.6-21 (Littre)).

⁷⁵Pamenides claimed that the proof that women were hotter lay in their menstrual flow (Dean-Jones 1994, 45). - The stereotype that women were frivolous was widespread, cf. e.g. *Pl. Ti.* 91B-D, but *Ar. Lys.* 163-6. Cf. Dean-Jones 1992.

To conclude, bodily secretions and emissions were of central importance for Hippocratic medicine, based as it was on humoral theory, in the following ways: along with hair and skin, they were analytical tools in the diagnosis of the breakdown in the equilibrium of the humors. An increase or decrease in the production or discharge of bodily fluids was considered one way in which to purge the body and, thus, cure disease. Moreover, secreted bodily fluids were a key element in theories on the flow of humours within the body. Finally, some Hippocratic physicians explained the physiological, social and cognitive differences between the sexes through the emission of different bodily fluids at different moments.

The issue of whether different kinds of bodily waste such as tears and menstrual blood, or different types of the same fluid, such as bitter and salty tears, were valued differently in the Hippocratic treatises - from neutral diagnostic signs to disgusting or dangerous substances - has not been addressed systematically. The fact that the tasting of the bodily waste of potentially or visibly sick patients was a significant part of the examination may hint at the fact that bodily wastes were generally considered neutral diagnostic aids. In contrast to tears and sweat, however, there is no explicit reference to the tasting of stool (Jouanna 1999, 301). This may point to the fact that faeces had a negative connotation. As with tears and sweat, menstrual blood was also categorised as neutral in terms of medicine. This also seems to have been the attitude among large parts of the Greek population. The only passage in the Hippocratic corpus which could be interpreted in terms of an ambiguous attitude towards menstrual blood, although not on the part of physicians, is the general encouragement of men to have sexual intercourse with their women during menstruation (cf. Dean-Jones 1994, 171, 234). Bodily fluids that seem to have had negative connotations, since they pointed to and caused illness, included those retained within the body, such as sputum, and putrid bodily secretions such as putrid breast-milk, that was believed to cause flatworm in the child.⁷⁶ The latter two examples indicate that a crucial factor in shaping attitudes towards different bodily wastes was their relationship to the body's orifices and their quality.

II.3.4 Magic

In contrast to the rich source of information for the study of bodily waste in the Hippocratic corpus, it is difficult to find evidence for the use of human waste in pre-Hellenistic magic practices. Hair attached to tablets and hair and nail trimmings attached to dolls, representing an alienated lover, are well documented for post-classical periods, but do not seem to have been common in the classical period.⁷⁷ Neither is there evidence in the pre-Hellenistic period that menstruating women could affect the fertility of land, destroy vermin or dim a

⁷⁶Sputum: Hp. *Aff.* 2.48 (7.72, 6-21 (Litré)). Milk: Hp. *Morb.* 4.55 (VII. 600.3-21)

⁷⁷Post-Classical examples: Jordan 1985, 251; Versnel 1991, 105 n. 133; Gager 1992, 16-8; Graf 1997, 140. *Οὐραία other than bodily wastes in 3rd century Greece* Theoc. 3.53. *Other cultures*: Preston-Blier 1997.

mirror, nor that priests took great precautions to bury their hair and nail clippings so that they would not be stolen and used against them in magic.⁷⁸ In addition, human bodily wastes such as the menstrual blood of a dead virgin, do not seem to have been considered essential magical essences.⁷⁹

If this absence of evidence is significant, it can be concluded that human bodily waste was not important in magical practice. It can be further concluded that bodily waste did not fulfil the criteria of a magic substance: to be rare, have a connection with the underworld (such as lead), or generally be considered as ambiguous, dirty, disgusting, or dangerous.⁸⁰ This combination of inappropriateness as magic substance with the category of non-ambiguous and non-polluting can best be seen in relation to menses; menstrual blood was not mentioned in pre-Hellenistic Sacred laws and menarche was insignificant for the social life of girls (cf. III.3 3; app. E; Dean-Jones 1994, 243-7).

II.3.5. The Comic Realm

Bodily emissions and discharges are favourite topics in ancient Greek comedy, allowing us to examine attitudes towards bodily waste in specific situations. The bodily wastes discussed include crepitation, burps and female secretions. Drawing on Henderson's (1975) study of faecal humour in Greek comedy, we can also explore the relationship between faecal humour in comedy and that on vase-paintings from the archaic to the Hellenistic periods.

Flatulence was not considered dirty in Greek comedy (cf. Thiery 1993, 507-8). Attitudes towards crepitating and belching were not based on the place in which it was emitted nor its odour. This is evident in the scene in Aristophanes (*Pl.* 697-706) where expulsion of wind in a sanctuary was simply described as ἄγροικόν (rustic or rude) and γέλοιον (laughable), even though the odour emitted was compared to the dirtiness of excrement. The main criterion seems to have been intent: crepitating caused by emotions, including fear, friskiness, happiness or laziness, was not considered repulsive or offensive. In contrast, flatulence which expressed contempt was considered dirty and offensive.⁸¹ The criterion according to which belching and belches were either classified as either intolerable and disgusting or as socially tolerable seems to have been the odour emitted (cf. Thiery 1993, 508).

⁷⁸Fields/Vermuns: Nilsson 1940, 28. Arist. *Insomm.* 45^b924-460^a23 as a later interpolation: Dean-Jones 1994, 229-30.

⁷⁹PGM 4.2575-84, cited in Graf 1997, 181 with n. 13.

⁸Lead: Ferguson 1988 882; Faraone 1991, 8; Graf 1997, 132-3. More generally: Graf 1997.

⁸¹List of intentional farting: Henderson 1975, 197 no. 429.

The majority of scenes of men urinating (οὐρῶν), defecating, (χέζων), vomiting (ἐξεμῆιν), crepitating or gulping were linked to faecal humor. They range from men desperately looking for a quiet place in which to relieve themselves to humans and heroes defiling themselves out of fear (cf. III.3.3; app. B, s.v. Bodily...). A number of archaic, classical and Hellenistic black- and red-figure vase-paintings drew upon comedy and faecal humor.⁸² These representations were not only painted (and looked at) in Attica (cat. 120, 124) and Southern Italy (cat. 158, perhaps also 155), but probably also in Lakonia (cat. 109) and Apulia (cat. 156).

Some of these images seem to show a scene from a comic performance. These scenes range from an actor vomiting on stage (cat. 156), to Herakles lying in front of the house of a desirable woman and being drenched in urine (cat. 155), to the depiction of the comic prototype of the χέσαντες, the forerunners of τρέσαντες (tremblers; cat. 109), if Powell's interpretation of the badly-preserved Lakonian potsherd is correct.

A humorous and comic version of the myth of Nessos is shown on cat. 158. It is difficult to say whether this image copied a scene from a well-known comedy or whether it was an original creation of the vase-painter. Nevertheless, the comic effect was achieved by changing the iconography of Nessos from that of a powerful and violent creature to that of a creature who is weak and not in control. It is noteworthy that Aristophanes used the same effect, degraded the super-hero Herakles to an anxious and passive anti-hero.

The two archaic Attic depictions, each of which shows a single man who defecates while squatting, also seem to draw on scenes from Aristophanic comedies, displaying for the audience certain all too human and mundane aspects of everyday life (cat. 120, 124). As in comedy, these images were probably meant for entertainment. Since these images were on *kylikes*, the target group of this kind of faecal humour was that of symposiasts.⁸³ Schäfer (1997, 57, 647) demonstrated that these images are just one feature of what he called the 'laugh-culture' of late-archaic Attic symposia with an impressive range of examples, including 'surprise'-drinking vessels.⁸⁴ The characterisation of the defecating men as comic figures, probably deformed dwarves, indicates that - at least in the opinion of the users of these vessels - public and uncontrolled defecation was not congruent with the dignity of a free man, unless he was somehow not entirely normal.⁸⁵

⁸² *Archaic and Classical depictions*: cat. 109, 120, 124, 156. *Hellenistic*: 154-5, 158.

⁸³ Cf. Johns (1982, 95, fig. 8) on the Romano-British breaker depicting a naked, ejaculating man with a large phallos.

⁸⁴ 'Surprise'-drinking vessels. Osborne 1998, 133.

⁸⁵ Cf. Dasen's (1993, 167) on the depiction of defecating dwarves.

II.3 6 The Dionysiac Realm

The discharge of bodily wastes by men and women after the consumption of wine, including at and after symposia, is recorded in a range of literary sources, including the Homeric epics, comedies and forensic speeches. It also was the subject of a substantial number of archaic and classical vase-paintings, most of which seem to have been used in symposia. As the literary and art historical sources cover a large time-span, I shall attempt to identify changes in attitudes towards bodily waste in the Dionysiac realm across time.

HOMERIC PERIOD

There are not many references to bodily emissions in the Homeric epics and Polyphemos' vomiting, caused by heavy drinking, is surely the most important reference.⁸⁶ This vomiting scene seems to have served to accentuate Polyphemos' animal character, thus legitimising his blinding. The content of Polyphemos' vomit included pieces of human flesh, recalling both the savagery of cannibalism, and the inhuman eating habits of the *Kyklops*.⁸⁷ Polyphemos was further described as a person defiled by his own bodily waste, disregarding one of the crucial social values of the Homeric élite, *κομιδή* (cf. app. D). Moreover, I believe that the manner of discharge may have been important in characterising Polyphemos as outside of the Homeric élite: lack of bodily control contrasts with the code of physical excellence which required control over the body. We cannot draw conclusions on the social acceptance of aristocrats who vomited after excessive drinking feasts from this passage. It may have been the case that the Homeric élite did not tolerate unrestricted and uncontrolled drinking and any affects on the body resulting from it. It is, however, equally possible that efficient vomiting was socially acceptable.

ARCHAIC TO EARLY CLASSICAL PERIOD

Better documented are attitudes towards bodily wastes in the archaic and classical period. Of interest here is a group of black and red-figure vases decorated with urinating, defecating or vomiting humans, satyr-silens and dogs at a symposium or a *komos*.⁸⁸ Most of the vessels have just one scene of bodily discharge, but there is one *kylix* which depicts the same motif twice (cat. 130, cf. 115 (dog)) and three with two different discharge motifs (cat. 108, 113, 128). The date for this set of motifs is c. 520 to 470-50 B.C. The depiction of bodily wastes, often painted in red, were favoured themes of the Brygos painter and his teacher Onesimos. The bulk of the preserved vessels is Attic, but there are also a few Lakonian

⁸⁶Hom. *Od.* 9.371-4. Cf. H m. *Il.* 4.217-9. However, the interpretation of Machaon's application of spittle on his wound as a *pharmakon* is just one of a number of equally plausible explanations (cf. Laser 1983, S110 n. 296).

⁸⁷*Deeds*: Hom. *Od.* 9.295. *Manners*: Hom. *Od.* 9.291-3 (eating raw human flesh without leaving bones as animal-like behaviour). Cf. Detienne 1972, Anhalt 1997, 22.

⁸⁸My catalogue entries are based on lists by Morel 1877; Hartwig 1893, 665-6 n. 1; Hirschmann 1985, 17 n. 21; Knauer 1986; Lissarrague 1990a, 22 n. 7, 96 n. 19.

examples and one Boeotian example.⁸⁹ That the iconography of bodily discharge was not considered appropriate for Etruscan cups can be deduced from an Etruscan copy of an Attic cup, on which the Etruscan copyist omitted the urinating satyr (Plaoutine 1937). The depiction of bodily wastes can thus be seen as an Attic phenomenon. In terms of chronology, the depiction of the discharge of bodily wastes was most common in the late archaic period, although there are also some sixth-century and early-classical depictions.⁹⁰ I have sub-divided this group into two further groups, which show considerable differences in attitudes towards the unrestrained excretion of bodily wastes.

My first group includes images of defecating dogs associated with a *komos* (cat. 115) and silen-satyrs that are defecating (cat. 110, 132-3, perhaps 115-6), urinating (cat. 154) or vomiting (cat. 152, perhaps 107). This kind of behaviour was associated with shameless creatures such as dogs and creatures that were outside the norms of culture and lacked self-restraint. It was thus certainly not considered socially acceptable behaviour for citizens.⁹¹ A nice contrast between human sophistication and the uncultured nature of animals, of Apollo versus Dionysos, is given in cat. 127: whilst the tondo shows Oedipos solving the riddle of the sphinx, the outside jar depicts a *komos* of satyr-silens. The wild and undomesticated behaviour highlights the ambivalent nature of wine, 'halfway between the savage and the civilized' (Lissarrague 1990a, 5 n. 5). The dog-silen group shares the negative connotations of the lack of control over bodily functions after the consumption of the ambiguous liquid with the two Attic depictions of dwarves relieving themselves (cf. II.3.5). Along the same lines is Xenophanes' statement that drinking is fine as long as one can withstand it and get home without an attendant. Xenophanes linked symposiasts relieving themselves with the rejection of αἰδώς (decency, appropriateness, good sense)⁹² Most of the examples of this group have been dated to the early classical period.

My second group includes images of female and male participants of symposia and *komoi*, who can no longer withstand the effects of the wine, or relieve themselves. The location in which this happens is not always clear; possible locations are private houses, streets, palaestra or sanctuaries (cf. Schäfer 1997, 56-7). The iconography of bodily discharges in this group differs in three important respects from the former: firstly, the 'protagonists' are humans, mostly male symposiasts. The female companions of the revellers were rarely depicted as having succumb to excessive drinking (e.g. cat. 148). In particular

⁸⁹Vomiting (archaic Attic): cat. 114, 119, 123, 125-6, 128, 129, 131, 134-9, 143-7, 142. Urination (archaic Attic): cat. 113, 122, 128, 130, 148. Attic Archaic defecation: cat. 109-10, 112, 116-8, 120-1, 124, 132-3. Vomiting (classical Attic): cat. 151-2. Urination (classical Attic): cat. 150, 153, 211. Defecation (classical Attic): cat. 149. Vomiting (archaic Lakonian): cat. 107, 109. Urination and defecation (archaic Boeotian): cat. 108. Defecation (archaic Euboea): cat. 110.

⁹⁰580-20 B.C.: cat. 109-10, 112, 114, 116-7. Classical: cf. e.g. cat. 149.

⁹¹Dogs: app. B with n. 28; app. E with n. 42. Silen-satyr: Lissarrague 1990a, 39.

⁹²Xenoph. fr. B1 (West; ap. Ath. 462C-F).

the depiction of vomiting *hetaeras* seem to have been typical for Lakonia. Secondly, urine especially and often also vomit were collected in vessels, even when the symposiast appears to be on his way home (cat. 150). The vessels are of various shapes, including one-handled circular-lipped jugs (cat. 127-8), clay basins (cat. 128, 148), and perhaps also double-handled vessels (cat. 148).⁹³ It can, therefore, be concluded with Morel (1877, 230) that revellers urinated into whatever vessel was at hand. It needs to be stressed, however, that the majority of symposiasts urinate into one-handled circular-lipped jugs, perhaps indicating that in the archaic period there already existed a standard type of portable ἀμίδεξ. Thirdly, in contrast to satyr-silens and dogs citizens could often rely on the assistance of their servants (e.g. cat. 150) or *hetaeras* (e.g. cat. 144).

There is currently a debate as to the social strata from which the male 'protagonists' derive. Himmelmann stressed that male revellers were explicitly characterised as members of the aristocracy, pointing to clothing including shoes (cat. 117), and the knotted stick (e.g. cat. 126) as social markers.⁹⁴ Consequently, he argued that these images are depictions of exclusively aristocratic symposia. In contrast, Schäfer (1997, 43, 57, 59, 66-7) has attributed these images to public Dionysiac festivals and stressed the democratisation of symposia, which took place during the late-archaic period (cf. Eder 1992). The opening up of symposia to a wider group of citizens went hand in hand, he argues, with a shift in the depiction of symposia on vases, from an eating to a drinking community. Both authors develop their argument with reference to different vase-paintings. I therefore believe that some of the vase-paintings belonging to my second group depict male aristocrats, while others depict citizens, and perhaps even craftsmen like Euphronios.

It has been noted that the depictions of bodily discharge at symposia and *komoi* belong to the same group as those depicting symposiasts involved in sexual activity: unable to stand properly, reeling, staggering or lying on the ground unable to get up, whilst being sexually aroused.⁹⁵ The female assistant on cat. and individuals such as Xenophanes, Plato and the politicians of Sparta would surely have categorised the images of Group 2 as bad behaviour.⁹⁶ There are, however, strong indications that these scenes are not to be understood as social criticism:⁹⁷ the man from Kos who decorated his tombstone with the image of a drunken komast was obviously proud of his drinking parties (Himmelmann

⁹³*Multiple uses of vessels*: Morel 1877; Knauer 1986, 95 n. 13.

⁹⁴*Shoes*: Himmelmann 1996c. *Stick as symbol of leisure (ἀγοράζειν)*: Himmelmann 1994, 18.

Cf. in general Fisher 1998, 86 n. 11

⁹⁵*Notion*: Lissarrague 1990a, 21-2; Himmelmann 1996c. *Erotic scenes*: Hoesch 1990a. *Off-balance*: e.g. late-archaic red-figure cup, Karlsruhe 70/395 (Lissarrague 1990a, fig. 13) *Lying*: Late sixth century tombstone from Kos (Himmelmann 1996c, 43 fig. 14).

⁹⁶*Xenoph. fr.* B1 (West; ap. Ath. 462C-F); Pl. *Lg.* 649D-650B, 666A-D. *Sparta*: Lissarrague 1990a, 5, 7.

⁹⁷*Socially acceptable behaviour*: Schauenburg 1974, 314; Hoesch 1990c, 282; Himmelmann 1996c; Schäfer 1997, 42.

1996c, 43). Theognis (1063-8, but 509-10, 837-40) celebrated both the act of drinking within the socially exclusive context of the symposium and the effects of (too) much wine and the lack of αἰδώς as positive social values. Moreover, the chronology of these images is the same as both those depicting games with wine (e.g. *kottabos* and *askoliasmos*) and the democratisation of symposia. It is, therefore, reasonable to argue that representations of the game of *kottabos* were associated with conspicuous consumption (Hoesch 1990b, 272), and also with images of revellers who could no longer be able to resist the effects of the wine which they had consumed. These depictions drew, then, on the common understanding that the exuberant, unrestrained and boisterous behaviour of symposiasts was caused by heavy and excessive drinking.

Schäfer (1997, 57, 58, 67) has suggested that the images of unrestrained human bodily discharge are not realistic depictions, but exaggerations and distortions of reality, the purpose of which was to make the symposiasts laugh. I do not believe that there is sufficient evidence to argue in favour of this view. There is only one image which may be described as humorous or funny, which depicts a drunk symposiast giving an emphatic speech and does not realise that it is time to empty his bladder (cat. 150). Schäfer's claim that revellers and *hetaeras* did not vomit, urinate and defecate at symposia is equally untenable. The most powerful argument against Schäfer are the two remarkable iconographic details that do not make much sense in the fantasy symposium which he presupposes, in which the guests would behave in ways which would not be allowed at a real symposium. Firstly, it appears that by the late-archaic period symposiasts were depicted as relieving themselves in an unrestrained, yet efficient, manner without defiling themselves and collecting their vomit and urine in vessels. The assistants also seem to have followed a code of conduct, as they are depicted helping the vomiting symposiast by holding his head within their hands. Schäfer's conclusions are also inconsistent. In particular, one of his main insights (1997, 42-4) - that the profile of symposia changed at the end of the sixth century - is based on vase paintings depicting revellers dancing, singing and gambling. Yet, Schäfer would deny the authenticity of 'Group 2' scenes, without giving any justification for this. The inconsistent treatment of scenes of dancing and urinating revellers is even more striking in view of Schäfer's claim that the depiction of revellers discharging bodily waste had no negative social connotation. Consequently, I believe that scenes of human bodily discharge (Group 2) could and did occur at symposia. I am also inclined to believe that some of these depictions were intentionally placed inside the *kylikes* in order to 'interact' with the symposiast. If revellers in antiquity could laugh at cat. 129, I argue, in contrast to Schäfer, that this was because the image played in a subtle way on commonly-shared experiences at symposia and *komoi*.

There are two points of crucial importance for the discussion of the vase-paintings (Groups 1-2) as part of the civilising process'. Firstly, the emergence and popularity of the

motif of bodily discharge in the Dionysiac realm is part of a much larger picture. More specifically, it is linked to new ways of representing and experiencing the human body and its functions, and a paradigmatic shift in the motifs and themes of vase-paintings around 530 B.C., which I would characterise as a shift from scenes of aristocratic to civic life.⁹⁸ It is also linked to the democratisation of the formerly exclusively aristocratic symposia, resulting in changes in the profile of symposia (from a social event in which meat and wine were consumed to a drinking event) and the invention of new drinking cups and games.⁹⁹ Secondly, the iconography of bodily discharge changed over time, and these changes can be linked to Elias' 'civilising process'. We can distinguish the following three phases in the Dionysiac realm: unrestrained discharge of bodily waste (Group 1, early); unrestrained discharge of bodily waste following a strict code of conduct (e.g. urinating into vessels, holding the head of a vomiting symposiast; Group 1, late); unrestrained bodily discharge at symposia and *komoi* now restricted to creatures like dogs and satyr-silens (Group 2).

The emergence, popularity and changes in the iconography of bodily discharge can be explained within Elias' framework in the following way: Kleisthenes' reforms initiated the social and political processes of democratisation in Athens, during the course of which the *demos* was formed and old forms of social control were abandoned. The new range of themes in vase-paintings and the new understanding of the body may be explained as expressions of and a reaction to a society in flux, where traditional codes of conduct were transformed and new codes created. In particular, changing attitudes towards the body point to the intersection of processes of social transformation with changes in how individuals were conceived. The changing iconography points to both changes on the level of the individual and on the level of the *polis*. More specifically, these changes can be seen as resulting from and perpetuating the processes which led rise to power of the *demos*, and the 'pacification'/civilisation' of the individuals which made up Athenian society.

THE CLASSICAL PERIOD

Vomiting induced in order to purge the body was considered a form of medical treatment and seems not to have had negative connotations (Joris 1984). By 450 B.C., vomiting, urinating and defecating as the result of unrestrained drinking were no longer a feature of Attic iconography, although we still have literary evidence of symposiasts urinating and vomiting at symposia due to excessive drinking.¹⁰⁰ The consequences of heavy drinking became the subject of forensic speeches and tragedy, and seem to have been widely classified as animal-like and indecent behaviour.¹⁰¹ The shift in the moral connotations of anti-*aidos*

⁹⁸*Body*: Schafer 1997, 57. *Themes*: Schafer 1997, 41.

⁹⁹*New forms*: Schafer 1997, 45, 50. *Democratisation*: Schafer 1997, 49.

¹⁰⁰e.g. Hdt. 1.133.3; D. 54.4. *Drunken and rowdy behaviour*: Murray 1990.

¹⁰¹*Forensic*: D. 54.4. *Tragedy*: e.g. A. fr. 180 (Radt; ap. Ath. 17C); S. fr. 565 (Radt; ap. Ath. 1.17D). *Animal-like*: (cat. 211). *Disreputable, indecent* (*ἀπρεπής*): Ath. 17C.

behaviour may be explained with the emergence of moral values such as *kalokagathia*, the philosophical value of σωφροσύνη (self-control, temperance, sobriety) and the socio-political value of ἰσονομία.¹⁰²

Following Elias' model, the new repertoire of normative behaviour at Athenian symposia can be explained in terms of an increase in the value of self-control within the new configuration of the Athenian *polis*. Athenian citizens hence had to exhibit greater self-control. Processes that can bring about this changes in the 'personality structure' of individuals are, in Elias view, primarily processes which aim at the monopolisation of power. One expression of a successful step towards the monopolisation of state-control in Athens is the emergence of prisons at Athens around 450 B.C. and the democratisation of the Athenian penal system. Consequently, I would suggest that the disappearance at around the same time of depictions of symposiasts and *hetaeras* relieving themselves is a result of the increase of the power of the *demos* in Athens.

A passage in Herodotos (2.176) sheds light on attitudes towards bodily waste in classical Greece: urine and vomit deposited in a precious food-bowl at a symposium are said to have permanently defiled the vessel. Although this was claimed by the Egyptian king Amasis, it has been argued that the setting of the story in general and the accessories of the symposium in particular, were Greek.¹⁰³ The question remains, whether the attitude towards urine and vomit was Greek or Egyptian. The content of chamber-pots was considered dirty in ancient Greece, and this perhaps suggests that the idea of permanent defilement was rooted within the Greek value system.

To conclude, little is known about the social acceptance of bodily functions relating to the discharge of vomit, urine and excrement in Homeric society. The discussion of vase-paintings suggested that it was socially acceptable to see images of bodily excretions and waste, in particular at the specific social event of an Attic symposium. Attitudes towards bodily discharge in the Dionysiac realm ranged from positive (Group 1) to negative (Group 2, cf. II.3.5). More specifically, these actions may have been celebrated by Theognis and his circle as expressions of a lack of αἰδώς (decency) or as conspicuous consumption. Others, by contrast, classified unrestrained bodily discharge at symposia and *komoι* as behaviour fit animals and animal-like creatures (Group 2) or liminal human beings such as dwarves (cat. 120, 124). Again, others, such as the *hetaera* on cat. 144 preferred not to observe such socially unacceptable behaviour. These differences in the meaning of and attitudes towards bodily wastes in the Dionysiac realm seem to have occurred around the same time and, thus,

¹⁰²*Kalokagathia as a fashionable novelty value at the beginning of the classical period*: Bourriot 1995 (on Ar. fr. 205 (Kassel & Austin)). *Effect of σωφροσύνη for depictions of rape*: Reeder 1996a, 16. *Σωφροσύνη*: e.g. Himmelmann 1996c, 45. *Impact of σωφροσύνη on public statues*: Fehr 1979.

¹⁰³Milne 1944, 32 n. 45; more general Hartog 1988; Cartledge 1996.

indicate a multivalence of opinions and views in antiquity. As I have shown, this diversity of views may partly also be explained as changes across time. The emergence, popularity, and disappearance of representations of bodily waste in connection with the consumption of wine in the repertoire of Athenian vase-painters may, therefore, be interpreted as resulting from the development of the Athenian *polis*, in particular the rise of the *demos*.

II.3.7 At home

Little is known about attitudes towards bodily waste in the *oikos* before the archaic period (cf. III.3.3). Hesiod was the first to note that human bodily waste was not tolerated in the inner household. Exceptions were made only for certain groups of people (including symposiasts, babies, and old men) and at certain times of the day (at night urine was collected in chamber pots).

II.3.8 Conclusions

The significance of and attitudes towards bodily emissions and the bodily functions which produced them was dependent on the context in which they occurred. Sweat, for instance was insignificant in sacred and magical contexts. It was, however, significant in medical and social contexts (cf. app. B, s.v. Bodily...). The connotations of sweat as a social marker ranged from positive to negative, depending on where and when one was sweating. The connotations of bodily waste also varied between social groups. While finger-clippings at festivals were considered a pollutant in the Pythagorean belief-system, sperm at the sacred Hearth was considered a pollutant for some Boeotian farmers, including Hesiod. Different individuals also attributed different connotations to bodily waste. Parmenides and most writers of the gynaecological treatises, for example, considered menstrual blood and menstruation as the key to explaining physiological and social differences between men and women, and the basis of a gendered medicine. By contrast, other Hippocratic considered menses to be an insignificant female body product and, therefore, used the same therapy to treat both men and women of the same disease, including dietary and temperature changes, hot vapour baths, and blood-letting. Different individuals also attributed different meanings to the discharge of bodily fluids in the 'Dionysiac' realm. Participants in symposia and *komoi* who vomited, urinated or defecated as a result of heavy drinking were categorised as people without a sense of αἰδώς. This categorisation carried negative connotations for some, whilst for Theognis and his circle it had positive connotations. Another factor which influenced attitudes towards bodily waste was historical time. I suggested that the changes in the iconography of revellers relieving themselves (seen as conspicuous consumption) was a reflection of the break-down of traditional social configurations and the creation of new ones in the late archaic period (Group 1). By the early classical period, unrestrained bodily

discharge at symposia and *komoi* was classified as typical of animals and animal-like creatures (Group 2). Other factors that determined attitudes towards bodily waste included their smell (in the case of burps, breast-milk, sweat, tears and perhaps also excrement), as well as the extent to which people had control over these emissions, e.g. crepitating in the comedies of Aristophanes.

This section (II.3) has demonstrated that the ancient Greeks did not classify bodily emissions according to criteria of usefulness versus uselessness or non-rubbish versus rubbish, which Thompson (1970, 917) considers crucial for modern Western cultures. The above discussion has also shown that Thompson's (1970, 917) categorisation of human waste products that disintegrate naturally and are thus not permanent, such as tears and sweat, as harmless and non-pollutant is not valid cross-culturally.

II.4 Cleanliness and cleaning practices

Concepts of cleanliness are cultural, social and historical constructs. According to the modified Eliasian model, they are conditioned by and responsive to processes of social and political change and, related to this, the interests of the authority in power, as well as to the specific context.¹⁰⁴ Concepts of cleanliness directly effect waste disposal procedures. They determine whether or not specific items and substances are to be considered dirty and thus need to be disposed of, are not to be tolerated and discarded in a specific public place, or, if dropped in an inappropriate place, must be relocated (secondary waste disposal). As such, I will analyse concepts of and practices relating to personal and spatial cleanliness (appendices D-E) within different social, political and historical context, and in relation to political and individual interests. I will explore personal cleanliness in appendix D with a view to linking the toleration of dirty bodies to the toleration of environmental dirt and waste in Chapter III, drawing on a rich tradition of anthropological studies e.g. Douglas 1995; Illi 1987; Vigarello 1988). An analysis of the relationship of standards of cleanliness with public places across time will shed light on the extent to which cleanliness, including legal prohibitions for waste disposal, shaped the perception of different public places and how *polis* authorities controlled and organised disposal practices of *poleis* at different historical moments.

II 4.1 Personal cleanliness - a summary

Continuity and change characterise the practices of and attitudes towards personal cleanliness from the Homeric to the classical period, as I suggested in appendix D. Continuity can be

¹⁰⁴A first step towards interpreting cleanliness in terms of civilisation was made by Ginouvès (1962, 20), although he did not analyse the material within an explicit theoretical framework.

observed in respect to the factors and motives behind cleansing. In all the periods studied here, personal cleanliness was required for important social events, such as festivals and weddings. In particular, female cleansing activities were linked to beautification and sexual intercourse. Special attention was also drawn to the cleanliness of hands in religious contexts from the Homeric to the classical period. The motives for cleansing oneself do not appear to have been simply hygienic (contra e.g. Dayagi-Mendels 1989, 14); they may perhaps be better regarded as symbolic.

Changes over time occurred with respect to how various social strata considered washing routines to be a normative behaviour and cleanliness a crucial social value. Whereas a high degree of body care (κομιδή) was a fundamental criterion for membership of the Homeric elite, in the classical period cleanliness appears to have been part of the value code of all Greeks, including prostitutes and slaves. Thus, the codes of conduct of the elite were adopted by the lower social strata over time. This did not mean that all social strata had a uniform attitude towards cleanliness, since new forms of social differentiation were chosen to express social difference. Status was expressed by setting aside a room within the *oikos* solely for the purposes of cleansing, and in the quality of perfumes and oils used (app. C, s.v. perfume, p. 414; app. D, p. 442; X. *Smp.* 2.4).

Other gradual developments that can be interpreted in terms of the civilising process outlined by Elias are changes in the method of cleansing and the frequency of washing practices. The changes are, however, not so obvious as in Europe from the Middle Ages to modern times, where there was a gradual development from irregular dry washes to regular washing of the body (Vigarello 1988) and the tolerance of unpleasant odours decreased over time (Corbin 1996). In contrast with modern Europe, washing with hot and cold water had a long tradition in ancient Greece and perfumes were employed as deodorants in the Homeric period (app. C, s.v. perfumes, p. 401; app. D s.v. Homeric period). Changes, which point to a greater refinement of cleansing methods, include, in my view, the introduction of the strigil as a cleansing implement for both men and women in the sixth century B.C., as cleansing with a strigil goes beyond the surface of the body. A more sophisticated cleaning method would only make sense as a response to a more refined perception of dirt. Such a change may have occurred as a result of the emergence of the concept of *miasma* in the early sixth century B.C. (II.2.1). A second major change towards a more refined perception of dirt, resulting in a more sophisticated cleansing technique, occurred around the mid-fifth century B.C., when people began to clean themselves with steam rather than just water. The middle of the fifth century was of critical importance for much broader developments in Athens (II.3.6). The construction of steam baths all over Greece appears to indicate that the changes identified for Athens occurred in other *poleis* too. Changes that may be interpreted as an increase in self-restraint can be seen in the trend towards excessive daily cleansing practices,

from the archaic and classical period, indicating that people washed themselves more frequently in the classical period.

The Eliasian gradual process of transferring certain actions from the public to the private sphere (*Verhauslichung*) may work for Egypt (Dixon 1972a, 647), but can not be applied to ancient Greek cleansing processes, as the aristocracy of Homeric society already cleansed themselves within their *oikoi*. More valid for the evaluation of Greek personal cleansing activities is the Eliasian processual category of 'specialisation', that is setting apart a particular place for one specific action, such as cleaning oneself in a bathroom rather than a river. It is difficult to say when separate bathrooms first came into use, as it is not yet clear as to whether a special room was set apart in the Homeric *oikos*. The earliest archaeological evidence for bathrooms belongs to the classical period, in private urban households. In the countryside, the process of specialisation seems to have taken place at a much slower rate. It is noteworthy that bathrooms were not standard within the typical urban *oikos* by the end of the classical period. In the public realm, buildings were reserved for cleansing activities from as early as the archaic period, with the public bathing facilities. In Athens, for example, shower houses were erected under the tyrants and are depicted on sixth-century vase-paintings. The oldest bathing facility erected close to a sporting ground was built at Olympia in the fifth century, and consisted of a cold-water swimming pool. By the classical period, hot-water baths were common features in the urban context. It is noteworthy that at this stage hot-water baths were referred to as cleansing facilities, but also as dubious places, patronised only by the socially marginalised, the poor and individuals who were 'good for nothing'.

The sixth and fifth centuries B.C. are critical dates in the history of personal cleanliness. This period was also crucial on an inter *polis* and, thus, on an inter-regional level. Not all changes occurred at the same time or in the same place. Discussing the process of 'specialisation', I showed that there appear to have been differences between the urban and rural contexts. The existence of bathrooms determined the location at which cleansing practices took place and signified the social importance attributed to physical cleanliness. Whether people in a household without a bathroom took washing less serious is another issue. Neither can we speculate as to whether people living in the countryside had a lower degree of self restraint than those living in the city (with a bathroom). The picture Aristophanes gave in his comedies is that of a rural population which did not live up to the standards of cleanliness common in Athens, and this seems to support the assumption that people without bathrooms did not take personal cleanliness very seriously. As I have shown, however, this picture was probably ideologically-biased, and does not represent actual social practice.

To draw a fuller picture of the past, it is necessary to relate the drastic changes observed in physical cleansing practices to other practices. In III.3.3 cleansing practices will be compared to changing perceptions of bodily discharge and changes in the disposal of organic waste. For an evaluation of transformation processes, it will be of interest to explore whether toilets and bathrooms evolved at the same time. This, and other factors, will be discussed in the following section, in relation to the interest which the *polis* authorities began to take in the cleanliness of public places. More specifically, I shall discuss whether the concern for the cleanliness of public places emerged as early as the concern for the cleanliness of individuals, in the sixth century B.C.

II 4.2 Spatial cleanliness - a summary

It has been shown in appendix E that standards of cleanliness varied from context to context and that there was not one single transformation process, which occurred at the same time in all public places. The only indication of an inter-contextual 'civilising process', in the sense of greater sensibility towards dirt, can be identified at the beginning of the Hellenistic period, when *megara* were covered with lids and people felt the need to equip *andra* with surfaces which could be easily cleaned. Whether the changes of the sixth century and the mid-fifth century also brought about changes in the cleaning patterns of *oikoi* and public places cannot be answered because of a lack of specific evidence.

All public places, except for cemeteries, appear to have been sites with restrictions, including waste disposal prohibitions. In terms of cleanliness, cemeteries seem to have been the public space for which the *polis* authorities cared least. Sanctuaries, by contrast, were of great concern for the *polis* authorities. Following Polignac (1984, 1995), the preoccupation of *polis* ideology with public sanctuaries may be explained in terms of the distinguishing rôle sanctuaries played in the political and social life of every Greek *polis*. Moreover, sanctuaries played a significant rôle in integrating members of the civic community and in creating new forms of solidarity, as they were the locus of the *polis* cults, where citizens and other inhabitants of the civic territory could participate. They were the spaces where the history of a *polis* was made, through the erection of public and private monuments and the destruction and recycling of the statues of political leaders who had fallen into disregard.

The demarcation of sanctuaries as special places was founded upon distinguishing patterns of cleanliness. *Polis* authorities appear to have applied the high standards of cleanliness that had defined and proclaimed sacrality and sacred actions in pre-*polis* Homeric society to define and proclaim this public space, a space which was of crucial

importance for the development of the *polis* in general and the development of democracy in particular. Cleanliness may therefore be said to have functioned as a reference system in the marking out and association of similar spaces within the urban landscape (cf. Lévêque & Vidal-Naquet 1964). *Pirrhania*, for instance, linked the Akropolis of Athens with the area around the Bouleuterion in the later *agora* of Athens. That sanctuaries were not regarded as sacred places by the entire population at all times, but rather as simply public spaces can be deduced from the behaviour of (some) visitors to the sanctuaries, and from a passage in Aristotle, in which he divided up the land into privately-owned and common land (cited in Isager & Skydsgaard 1995, 119).

The earliest evidence for *polis* authorities taking an interest in the cleanliness of public spaces dates to the end of the fifth century B.C.. At first sight this suggests that the personal cleanliness of the population part the agenda of the *polis* authorities at a much earlier date than the cleanliness of common spaces. This is not, however, necessarily so, since the written reference to the requirement for clean sacred places only provides a *terminus ante quem*. In fact, the purification of Delos by Peisistratos may indicate that the concern for personal and spatial cleanliness were of equal importance to the Athenian tyrant.

The collection and removal of waste from within the *polis* to somewhere outside of it was not part of the responsibilities of the *polis* authorities or of the magistrates working for the community. The only exception was the removal and burial of the corpses of people who had died in the Athens streets. The regular cleansing of sanctuaries which involved the removal of illegally disposed substances such as κόπρος seems to have been financed by the sanctuaries themselves. A panhellenic sanctuary such as Delos provided the funds from the treasury (Linders 1997) and smaller sanctuaries such as that of Neleus allowed the person removing the dirt to use it as manure (Sokolowski 1969, no. 14, app. G.1). The removal of κόπρος (excrement) from cesspools and τέλμα (standing water, mud in a pool) seems to have been done in classical Athens and perhaps also at Thebes by private agencies, controlled by the *astynomoi* at Athens and the *telmarch* at Thebes, both representatives of the *polis*.

II.5 Conclusions

In contrast to Western industrialised countries, in which waste is a homogenous mass of discarded or unwanted items and substances, ancient Greeks do not seem to have had a collective term comparable to the English term 'waste'. The existence of the abstract concept of μίαισμα for everything dirty and polluted, suggested that the lack of a comparable concept of waste cannot be explained by a lack of abstract thinking, but

rather in terms of social irrelevance. Instead, that there were a number of sub categories based on specific activities (e.g. sweeping, dropping, cleansing, and separating) that were more important in classifying objects than general disposal: in the ancient Greek language, there existed terms for sweepings (χλήδος, κόρημα, συρμάς, συρφετός, φορυτός), droppings (τὰ πίπτοντα), left-overs (τὰ λειφθέντα, λείψανα, ὑπολειπόμενα), anything thrown away during cleansing (κάθαρμα, κάθαρσις). These collective terms suggest that for Greeks such specific activities were of social significance. In addition, the waste matter κόπρος, seems to have been of crucial importance to ancient Greeks; κόπρος could denote vegetable matter and faeces, either heaped up or collected in cesspools, as well as manure spread over fields.

The lack of an abstract, homogenous category of waste is not too surprising, as the celebration of non-value (*Un-wert*) resulted from the alienation of the producer with the endproduct and the quickly changing fashion since the Industrial Revolution (e.g. Thompson 1969, 559; Illich 1989, 28; Hoffmann 1989, 14). Spatial disposal patterns are deeply rooted in the understanding of discarded matters. Our abstract and collective conceptualisation of waste as having no recycling value allows us to regard trash and garbage as the same (cf. app. A; I.2.3) and to throw them away together at the same location. As waste was not a homogenous category in Greece, drawing on the notion of non-value, it can be expected that only a few waste-matters were regarded as disposables and that the majority of them had a perceived recycling-value and were separated from the waste stream and kept or stored in different locations. This hypothesis would need to be tested in the following chapter.

I showed in II.1 that dirty waste was just one category of what I called waste in my framework, albeit an important one. Waste can also be considered a source of danger, a metaphor for wealth, a sign of death, or a temporary or permanently unwanted matter. Except for dangerous and tabooed waste (II.1.5, 6), all other kinds could in theory be reclaimed from the waste stream. To which extent this happened will be discussed in chapter IV. It is noteworthy that waste occurred nearly exclusively in everyday situations and was beyond discourse in Giddens' use of the term. Waste became only seldom the subject of art, shifting it to the level of consciousness and discourse. Examples discussed include the mosaic-floors decorated with the theme οἶκος ἀσάρωτος, an unswept floor/house (II.1.3) and the myth of Hermes Peripheraios (II.1.5).

Substances which were categorised as dirt or dirty waste included some human bodily emissions. As dirt is no value inherent in these substances, but rather a socially constructed value, the classification of bodily wastes as dirty varied over time, from realm to realm and from individual to individual (II.3). Interestingly, there is no evidence that

menstruation blood was regarded dirty or polluting in pre-Hellenistic Greece. Semen, by contrast, was held incompatible with the sacredness of the hearth-fire by Hesiod (*Op.* 732-3), but this seems to have been the only pre-Hellenistic reference of this kind. I also showed that different people had different attitudes towards urine, excrement and sweat in certain circumstances (II.2.2; II.3). Although it appears frequently - obviously with a negative connotation - in legal prohibitions regulating the disposal of waste at public places of the classical and Hellenistic periods (and may, therefore, be called objective waste (II.1.4), it also played a crucial rôle in guaranteeing the existence of the *polis*, as it increased the fertility of fields and women.

The perception of dirt as a social phenomenon was significant also for social differentiation in ancient Greece. Using Douglas' framework of dirt as 'matter out of place', I discussed why old and hard-working people as well as cowards were socially not fully accepted. A lack of control over bodily waste resulting in its production in socially unaccepted places or in self-defilement was an important factor in the low opinion towards cowards and old men. The social position of craftsmen can be seen similarly as linked to the discharge of bodily secrets and sweat, in particular, outside of socially accepted contexts, such as palaestra or warfare.

As for the question of public involvement of the *polis* in the regulation of waste is concerned, we have seen that most of the surviving legislation on disposal regulations dealt with the cleanliness of sanctuaries. If the surviving epigraphic evidence is representative, we can conclude that the cleanliness of sanctuaries was high on the agenda of *polis* authorities, especially Athens. Both physical and as well as symbolic cleanliness were thus distinctive concepts of the sacred (app. E; II.4.2 - note, however, that, as I argue in app. E, cleanliness and purity could also function as appropriate means for creating other kinds of differentiation, for example status differentiation). Purity clearly played a large rôle in the creation of sanctuaries as special places and the sacred as something entirely different from the profane. Consequently, I would not agree with scholars like Connor (1988) who argue against a sharp distinction between the secular and the sacred and their link to sanctuaries or settlements.¹⁰⁵ More specifically, the sacred and the profane may have *coexisted* in settlements, for instance, when the sacred hearth fire burnt in an *oikos* and required special cleanliness rules, but they were still two separate things. In terms of sanctuaries, the image and existence of the *polis* may have been tied to the sacred (Polignac 1984, 1995), but the sacred was still distinguishable from the profane and the political, as can be seen in the erection of perirrhanteria at *agorai* (cf. app. E, s v.

¹ *Purity and the sacred*: e.g. Parker 1996, 18-31; Pimpl 1997, 1-3. *The sacred /sanctuaries as s.th. different*: e.g. Eliade 1998; Wasilewska 1993, 471; Hubert 1994. *Against sacred profane dichotomy*: cf. Nilsson 1940, 76; Easterling 1985, 35; Walter-Karydi 1985, 100-1; Stahler 1993, 5.

agorai). In contrast to sanctuaries, the conceptualisation of cemeteries seem to have been built on concepts of dirt (app. E; II.4.2). If this interpretation is right, the 'dirtiness' of this place was used strategically in an apothropaic way to protect vulnerable points of the urban landscape, such as gates or roads leading towards the entrances of the *polis*. I shall focus on this aspect in more detail below (cf. IV.5.2; app. F).

While it is thus clear that waste was mostly an undesirable commodity, little is known about the actual organisation and planning of the collection and final disposal of waste. In *poleis*, the only existing references to the institutionalisation of waste removal deal with *κόπρος* (faeces) and *τέλμα* (standing water, mud and excrements in a pool) and highlight the situation of classical Athens and Thebes respectively (app. E). Private entrepreneurs, the so-called *koprologoi*, removed *kopros* from within the city of Athens, depositing it outside the city. It is probable that their primary occupation consisted in emptying private and perhaps also public cesspools, and that they were paid for this work. Thus, *koprologoi* had a job similar to that of the Roman dung-gatherers who cleaned the cesspits (*stercorarii*) during the Roman Empire (Scobie 1986, 414). They perhaps, also made some money by selling the content of cesspits to farmers, whose farms were at the outskirts of Athens, since the outskirts were the places where *kopros* was deposited; the only state invention was the *astynomos* whose task it was to ensure that the *koprologoi* did indeed dispose of the *kopros* outside the city walls. Whether or not they also operated as a kind of street-cleanser, is unclear. If so, the removal of human corpses from Athenian streets was not among their duties, as this task was carried out by public servants on behalf of the *polis*. The collection, removal and disposal of waste at Thebes, and perhaps also in other Greek *poleis*, seems to have been organised in roughly the same way as at classical Athens.

There is evidence that the removal of dirt was also a major concern for the sanctuaries. Little is known, however, about the financing of the disposal and the frequency at which it was carried out and who was employed to do this. At Delos, the sanctuary seems to have funded the cleaning operations. It is thus possible that the sanctuary at Delos employed a private enterprise rather than public slaves. Smaller sanctuaries or rural shrines, such as those at Athens, seem to have used a cheaper solution, allowing the person removing the dirt to use it as fertiliser.

Yet, it is not only spatial or social differentiation that have been identified as relevant in the present analysis of concepts and attitudes towards waste. The diachronic perspective, too - especially regarding personal and spatial cleanliness - has yielded important results, revealing changing patterns across time. Special attention was drawn to transformation processes in II.2.1, 3.6, and II.4. I pinned down three phases of remarkable changes on

the behavioural level of individuals: (1) the end of the sixth century/beginning of the fifth century, when depictions of rape, and excessive drinking with all its consequences became socially acceptable in the Dionysiac realm, on the one hand, and when the use of the strigil as a cleansing agent marked a shift in the perception of dirt, on the other; (2) the middle of the fifth century, when the above mentioned pictures were rated as disgraceful for humans in Athens and when steam baths became fashionable. (3) the end of the classical/beginning of the Hellenistic period, when provisions were made to eliminate the odours set free during the rotting process of pigs in Thesmophoriai by covering 'μέγαρα' with a lid at the sanctuaries of Priene, Agrigento and Herakleia, to keep the cisterns of Morgantine and a number of *andra* perfectly clean. In accordance with the framework of Elias, the behavioural (and conceptual) changes may be explained as visible signs of changes in the personality structure of individuals. More specifically, they may be explained in terms of an increase of self-constraint that resulted from socio-political changes, involving new societal configurations and distributions of power. The socio-political changes following the reforms of Kleisthenes, I argued in II.3.6, may be taken as the event in the course of which old socio-political structures were in flux. The monopolisation of power by the *demos* appears to have put more pressure on the individuals, leading to a greater refinement of cleansing methods. Symposia and *komoi*, which had previously been the exclusive domain of aristocrats, appear to have been the focus of transforming and creating anew. The establishment of democracy, which led to the centralisation of the penal system by the state, marked another phase of transformation processes: the code of conduct changed in symposia and the sensitivities towards dirt seem to have increased. Another critical phase in which socio-political changes affected the personality structure of the individuals configured in a *polis* occurred at the turn of the classical to the Hellenistic period. Since changes in the tolerance of dirt usually bring about changes in the spatial disposal patterns of organic waste, in particular of urine and excrement, it can be expected that changes in the disposal practices of bodily wastes occurred in the late archaic and period and around 450 B.C. Whether these changes indeed occurred synchronically in ancient Greece, is to be briefly examined in the following chapter in III.3.3-4.

III. WASTE DISPOSAL PROCESSES AND PRACTICES

In this chapter, I explore the concept of disposal as a cultural category within ancient Greek society. The perceptions and value of disposal could vary from situation to situation, across time and even from individual to individual. In III.1, I discuss a significant range of underlying motivations for disposal practices and their effect on understandings of, and attitudes towards, disposal practices as well as of spatial disposal patterns. In the following sections, I systematically analyse the variability of waste disposal patterns according to the factors of time and space in the contexts of sanctuaries (III.2), settlements (III.3), *agorai* (III.4), and cemeteries (III.5). Emphasis is given to disposal activities in sanctuaries and cemeteries, places which are not normally associated with disposal practices. Special attention is drawn to the disposal of objects specific to these contexts, namely votive offerings, sacrificial waste, the dead, graves and grave implements. As these items and substances have never been discussed from the perspective of waste management, I have developed a methodology for the identification of rubbish assemblages. If it emerges that dumping was a routine activity in sanctuaries, then the image of sanctuaries as special places entirely different from daily life will have to be modified (cf. app. E; II.4.2, 5). In order to examine the similarities and differences between the four contexts, I analyse the disposal practices of *ostraka* and sacrificial, slaughter and consumption waste across all the contexts. By specifically focusing on *ostraka*, and not potsherds in general, I can analyse inter-contextual disposal patterns, as the majority of Athenian *ostraka* were found outside of the *agora*, even though *ostrakophoria* were held inside the *agora*. Changes over time and their connection to the development of the *polis*, and thus to Elias' interpretative framework, will be briefly highlighted, in relation to the disposal of liquid and organic waste within settlements.

III.1 Concepts, attitudes and terminology

Depositional processes have been classified by different people in different ways, depending on their research interests and intellectual outlook. Donderer (1991-2), for example, distinguished between reversible and irreversible depositions and discussed the places where the ancient Greeks and Romans permanently deposited things. Formation theory led to the development of a more detailed classificatory system, taking into account disposal and de facto disposal practices as well as spatial variability (primary and secondary (de facto) waste disposal). Deal (1985) formulated three sub-categories of disposal behaviour in order to discuss spatial disposal patterns: provisional discard, disposal resulting from residential

maintenance, and dumping disposal. I have modified Deal's sub-categories in three ways. Firstly, I focus on disposal practices rather than depositional practices. Secondly, I consider intentionality and attitudes towards dumping practices from the perspective of a general post-processual theoretical outlook. Finally, I have expanded the number of contexts studied. This has resulted in the following modifications: I discuss disposal resulting from residential maintenance under the more general heading of 'removal' (III.1.1), and irreversible depositions as intentional 'rejection/riddance' (III.1.2). Ancient Greek perceptions of these dumping facilities, resulting in different attitudes towards dumping caused by moving-away are discussed in III.1.3-6 (games, business, intelligence, scandal). I have taken the category of provisional discard from the terminology of formation theory (III.1.7), whilst the terminology used to discuss discarding as a magic rite, insult, crime, and laying waste in a wider sense, is my own (III.1.8-11). I have included gift-giving activities (III.1.12) amongst the non-dumping actions to highlight the difficulties involved in archaeologically distinguishing disposal from *de facto* disposal practices, a problem with which I deal in more detail in III.2.1-2. Finally, I list the Greek terms for waste disposal in III.1.13.

III.1.1 Waste disposal as removal

When things were considered 'matter out of place' in Douglas' sense of the word (cf. I.2.1) or useless (ἄχρηστος: Arist. *EE* 1235A), they were cleaned away at some stage to be disposed of outside of the cleaned area or directly thrown away (ἀποβάλλειν; ῥίπτειν). Waste resulting from cleaning activities could include human or animal excrement cleaned out from pens, temples, or cesspools, which was then heaped up inside the courtyards, outside the city walls or the boundaries of a sanctuary. This waste could also include sweepings which were then deposited outside workshops or households, on the streets or close to the backdoor of a courtyard, or slops thrown out (ἀπόνοιπτρον ἐκχέειν).¹ Additionally, old civic documents, marble chips and destruction waste could be dumped in wells.² Even the remains of an uncustomary sacrifice and human remains, including of people who had died during a sea voyage and of those about to be buried within or close to a

¹*Sweepings*: D. 60.22, 27, 28, 29 (cf. II.1.1 with n. 7). *Working debris*: cat. 189, pit 6. *Slops*: Ar. Ach. 616.

²*Civic documents*: Braun 1970, esp. 194, 269. Cf. Murray 1997 for the treatment of old civic documents in Kamarina and at Euboea. *Chips*: cat 37, 175. *Destruction debris*: e.g. Shear 1993.

sacred precinct could be classified as disturbing, resulting in their removal (καθαίρειν) and final disposal (ἐκβάλλειν).³

Waste resulting from cleaning activities was often disposed of, although with the possibility of further use in mind (cf. II.1.2; III.1.7). This is evident from a passage of Xenophon (*Oec.* 20 10 11, cf. app. G.2), where he uses the terms 'ἐμβάλλειν' (to throw into) and 'ἀθροίζειν' (to collect) to describe the activity of dumping weeds, which had been pulled out and cleared away by a farmer before he sowed the fields, into hollows filled with water. Whilst Xenophon stressed with the first term that the removal of weeds was the last step of a cleaning activity, he stressed with the second term that it was the first step in the preparation of manure.

It is sometimes necessary to remove the things belonging to a certain phase of one's life in order to move on to a new phase. In ancient Greece, for instance, it was part of the rite of transition from girlhood to womanhood for a girl to give away her dolls to female goddesses such as Aphrodite (Maaß 1996, 143; Fittà 1998, 54). Homer stated that this rite of separation was just a formal procedure, and that it did not mark a woman's inner maturity, as it was typical for women of all ages to be attached to toys (ἄθυρμα) and to behave like children, without any reason (νηπιέη, νηπιαχεύειν).⁴

III.1.2 Waste disposal and riddance

In modern waste management, an 'away' is a *terminus technicus* for an unknown place where people throw things away and expect never to deal with them again (Lund & Lund 1993, B 3; cf. Hoffmann 1989, 13). In antiquity, this extreme form of removal was considered appropriate for polluted objects which caused feelings of moral revulsion. The rope by which people hanged themselves and the branch to which the rope was attached, for example, were removed to somewhere outside the boundaries of the city.⁵ The alternative strategy of dealing with such objects, their destruction, leaves no doubt that the most important aspect of the method by which these objects were disposed was to deny that they ever existed. Permanent waste disposal, which had not been successfully performed, was the topic of myths. In the myth of Hermes Peripheraios, Thracian fisherman unsuccessfully attempted to make firewood out of driftwood and to burn it completely. They were scared and decided

³*Sacrificial remains*: Parker 1996, 339. *Corp es*: Hom. *Od.* 15.476-481 (ἐκβάλλειν). *Inhumed corpses*: cat. 104 Hdt. 1 64 2 (καθαίρειν); Th. 3.104.

⁴e.g. Hom. *Od.* 15.415-6; 459-10; *h.Cer.* 15-6. Cf. Laser 1987, T95-6.

⁵Parker 1996, 42. For other items cf. e.g. Hom. *Il.* 1.314; Hes. *Th.* 178-82; E. *Hel.* 1271; Timae. *fr.* 149; Ps.-Appolod. *Lib.* 1.1 4.

to throw it back into the sea, so that it would not 'come back' (*POxy* 661.45-50, col. 2, cf. app. G.2, Kerkhecker 1999, 190-1; cf. II.1.5). When they found it for a second time, they realised that this wooden block was in fact a representation of Hermes (cf. II.1.5).

Another example of what was, in my view, unsuccessful permanent waste disposal was noted by Herodotos (3.40.3-4, cf. app. G.2) in connection with the story of Polykrates, who was said to have thrown into the sea that which was dearest to him (τὸ ἐόν τοι πλείστου ἄξιον), a ring, so that its absence would cause him misfortune (ἐναλλάξ αἱ εὐτυχίαι) and true sadness (μάλιστα τὴν ψυχὴν ἀλγίζειν).⁶ This reading highlights the fact that the disposal was part of a clever plan to deliberately end his streak of constant good luck, because such good fortune was likely to invoke the jealousy of the gods, inevitably resulting in a shameful death (Hdt. 3.40.2-3). That the casting of the ring into the sea was not an offering, but a permanent disposal strategy is further supported by Herodotos' description of the retrieval of the ring and the terminology used for the disposal. Herodotos (3.42.4; 43.1) does not claim that the sea 'refused' the gift, but that it was Polykrates' fate (θεῖον εἶναι τὸ πρῆγμα) always to be lucky (εὐτυχέων τὰ πάντα). Herodotos used the verb ἀποβάλλειν three times and the verb ῥίπτειν once, but not εἰσβάλλειν or κατίασθαι, in another passage explicitly referred to making offerings to the sea (7.54.2-3). That ἀποβάλλειν was synonymous with irretrievable disposal can be deduced by its use in opposition to εὐρίσκειν (Hdt. 3.43.1) on the one hand, and ῥίπτειν, when it became evident that Polykrates' plot would not be successful, on the other. The conceptual link of ῥίπτειν with concepts of removal rather than riddance was not restricted only to Herodotos, but other writers referred to it too e.g. Str. 4.1.16, but e.g. Arist. *EE* 1235A).

Permanent disposal did not only include things, but also people. The sea, in particular, was seen as the perfect place to dispose of a murder victim, as it was a place of no return and would, thus, cover up the marks of the crime.⁷ In mythology, disposal at sea was not only considered an efficient way of permanently getting rid of the dead, but also of people who were still alive, including enemies, the disfigured and unwanted children.⁸ That the sea was conceived of as the ultimate place of no return is evident from the story of Achilles, when he tried to get rid of Lykaon permanently. When all other measures had failed, including selling him as a slave at

⁶Cf. Davidson 1998, 288-9. *Offering* : e.g. Linders & Nordquist 1987, 45; Kraus & Ihm 1996, 433.

⁷*Crime*: Antipho *On the murder* 39. *Sea*: Hom. *Od.* 1.162; 3.192; 23.236-8; *h.Merc.* 138-41; *E. Hel.* 420; *Pl. Ti.* 22E. *Motivation*: Hom. *h.Merc.* 138-41.

⁸*Enemies*: Hom. *Il.* 21.34-5. *Children*: Hom. *h.Ap.* 316-20; Hdt. 4.154.2-3, cf. app. G.2.

Lemnos, he finally entrusted him to the deadly depths of the grey sea (Hom. *Il.* 21.34-59, esp. 58-9).

Occasionally, the act of *καταποντίζειν* or *ἐμβάλλειν*, of throwing (unwanted) people and things into the sea, was used by individuals and *polis* authorities as a punishment. This practice was quite common in ancient Rome, where stone and metal statues of politicians were often thrown into the Tiber (Donderer 1991-2), but it appears not to have been so common in ancient Greece.⁹ One case is mentioned in connection with the removal and destruction of the bronze statues of Demetrios of Phaleron, some of which were melted down into chamber-pots and others thrown into the sea (D.L. 5.77). The denial of the existence of the disposed object and its erasure from memory were probably also the primary motivations for the disposal into sea of the murder weapon which a priest of Zeus had used to kill a sacrificial ox, who had dared to eat from the wheat and barley mixture at the altar. This disposal activity was later enacted, albeit in an abbreviated form, in the ritual, in the *Dipolieia* or *Diipolia*, a feast in honour of Zeus *Polieus*.¹⁰

It is noteworthy that not all objects and persons which were located beyond the reach of humans resulted from dumping practices. Places like rivers, the sea, a stream, a coffin or a well were ideal places for depositing (*παπατίθεσθαι*) voodoo dolls and curse tablets (*katadeseis/tabellae defixionis*), an act which required secrecy and contact with the nether world.¹¹ The sea, in particular, was also a favoured location for bloodless suicide. The reasons for jumping into the sea, especially for mythological figures, included despair, grief, fury, and shame, particularly from sexual humiliation (Hoof 1990, 74). Versnel (1981, 154) has suggested that suicides who favoured the sea as the location for their act aspired to a unification with the sea. This is certainly true, but does not really explain why the sea was such an attractive place. I suspect that the attraction lay in the conceptualisation of the sea as a place into which one can easily and efficiently disappear.

⁹*Roman examples*: Donderer 1991-2, esp. 200. Judging from the river finds, Romans tended to dispose of only the heads of bronze sculptures. This may indicate that the bronze torsos were reused by Romans as regularly as the marble torsos of the togatus-type. *Damnatio memoriae*: e.g. Vittinghoff 1936: B n & Stemmer 1996. *Possible Greek example*: cat. 106.

¹⁰Paus. 1.24.4; 1.28.10; Porph. *de abst.* 2, 28-9. Cf. e.g. Aktsele 1996, 33-4.

¹¹*Places*: PGM 7 451-2, cited in Gager 1992, 18. *Verb*: DT 86A, cited in Faraone 1991, 14, 28 n. 61.

III.1.3 Waste disposal as a game

A playful way of removing wine dregs (λάταξ, λάταγη or κότταβος) was practised in symposia. The game of κότταβος is said to have been invented in Sicily and seems to have been popular all over Greece by the end of the archaic period.¹² The aim of this game was to remove the dregs by flicking the drinking vessels in such a manner that they would hit a target, which would then either fall or be submerged (cat. 140). The target varied according to the version played. It could have been a plate (πλάστιγξ) positioned on top of a metal stick (ράβδος κοτταβική), a lantern, a phallos-bird (cat. 140) or a vessel, which usually took its name from the remains of the wine which was poured into it λαταγεῖον, κοτταβεῖον or κοττάβιον.¹³ In the variation ἐν λεκάνη or δι' ὄξυβαφῶν, best described by Kratinos, the remains in the cups were thrown at empty vinegar vessels (βάλλοντες τὰς λάταγας ... ἐπ' ὄξυβαφὰ εἰς ἐνέβαλλον ὃ τὰς λάταγας) floating in a tub (λεκάνη) so as to hit, and thus sink them.¹⁴ The person who hit the most received a price called a κότταβος. In another variation, called ἀφροδισία, the player called out the name of his lover, while flicking the dregs (e.g. τοὶ τήνδε λάταγα ἴημι).¹⁵

Another kind of game was described by Pausanias (2.23.8) in reference to the water of Ino, into which cakes of barley meal were thrown during the goddess' festival so as to predict the future. If good luck was in store for the thrower, the cakes stayed under the water. However, if the water brought the cakes to the surface, this was judged as a bad sign.

III.1.4 Waste disposal as a business

When specialists removed dirt and waste, they were paid. Best documented is the profession of the κοπρολόγοι, private entrepreneurs operating in Athens, who probably cleaned out cesspools and deposited the contents outside of the Athenian city walls, where the fields and gardens of the city was located with its κήποι (gardens/fields; app. E, s.v. settlements). They may have made extra money through the sale of κόπρος as manure to the farmers whose fields and gardens were positioned just outside of the city walls. This business appears not to have been

¹²Sicily: Anacr. 415 (ap. Ath. 427D); Critias fr. 1 (Diehls; ap. Ath. 28B, cf. Ath. 666B; Ar. Pax. 344. Greece: Alc. fr. 24 (Diehl); Craun. fr. 124 (Kassel & Austin; Soph. fr. 257 (Nauck)

¹³Plate: Alc. fr. 24 (Diehl). Lantern: Eub. fr. 171 (Koch); Cratin. fr. 273 (Koch). Cf. Hoesch 1990b, 3; Fittà 1998, 106 n. 15. Phall s: cat. 140. Vessel: Cratin. fr. 124 (Kassel & Austin).

¹⁴Quotations: Cratin. fr. 124. Kassel & Austin; ap. Ath. 666D, cf. app. G.2). Cf. Schneider 1922, 1537-8; Luppe 1992.

¹⁵e.g. Csapo & Miller 1991; Fittà 1998, 95.

lucrative, as the κοπρολόγοι did not seem to have had a special interest in dumping κόπρος outside of the city-wall.

That the removal of organic waste was linked to trade is suggested by a device found in one of the sewage channels emptying into the Kephisos valley, close to the Dipylon gate of Athens (cat. 174B). The Sacred laws regulating the sale of *kopros* as manure may point in the same direction, if the *kopros* on sale came from cleansing activities (cf. IV.2.4 s.v. κόπρος, ἰλύς; app. E, s.v. sanctuary). It is perhaps noteworthy that the *damiorgoi* of the sanctuary of Hera may not have been too keen in trading *kopros*, as the Tegean decree mentions a fine for those who fail to sell it (Sokolowski 1969, no. 67.27-30).

III.1.5 Waste disposal as intelligent behaviour

Aristotle (*HA* 8.7 (Balme), cf. app. G.2) noted that swallows teach their young to clean their excrement from their nests by initially throwing it out from the nest (ἐκβάλλειν) for them, and then teaching them to defecate over the edge of the nest (προίεσθαι). This suggests that it was believed that swallows resembled human life in terms of the precision of their intelligence (διανοία). It would, therefore, be legitimate to call the disposal of bodily wastes outside of the living sphere an intelligent action. It is perhaps noteworthy that Aristotle – in contrast to the Cynics (cf. IV.1.9; app. B) – believed that swallows imitated human behaviour (μιμηματά).

III.1.6 Waste disposal as a scandal

Desertion was considered a disposal practice in ancient Greece, as it was referred to as 'throwing away the shield'. This act may be conceptualised as discarding motivated by removal, since the shield is an unwanted item at the moment it is cast away. Deserting was commonly known as ῥιψασπία (e.g. And. *on the mysteries*). Aristophanes referred to it as φυλλορροεῖν ἄσπίδα, establishing a link between the natural process of shedding leaves in autumn (φυλλορροεῖν) and the throwing away of one's shield. Since this action was synonymous with desertion, it was not socially acceptable (e.g. Halliwell 1993, 331).

III.1.7 Waste disposal as punishment

The methods for the execution of criminals in Athens and Sparta as well as the secondary disposal of human bones indicate (cf. app. F; III.5.1) that punishment

could be continued beyond death in ancient Greece. Athenaios (541C-E) gives the most detailed account of the disposal of human bones in the story about the revenge the Lokrians against the family of Dionysios the Younger, tyrant of Sicily. Athenaios stated that after the violation and murder of the family of Dionysios, the physical remains of the dead were served as a meal to the Lokrians¹⁶

III.1 8 Waste disposal as provisional disposal

In contrast to permanent waste disposal, some waste items and substances were kept separate from others yet within reach, so that they would easily be accessible, because of their perceived recycling value. For Xenophon (8.8-9, cf. app G.2; Ar. V. 129), the philosophy of not carelessly disposing of anything that could be of use in the future was the key to a well managed household. Although he gave detailed instructions on how to put into practice the ideals of a well managed *oikos* in other instances (e.g. X. *Oec.* 8.17-21; 20.11), he failed to do so here. Thus, it is unclear whether the proper place for potential recyclables is separate from that of functioning utensils or whether broken items should be stored according to their classification, that is to say damaged bronze pots together with intact bronze pots and broken tableware together with intact tableware, etc. On a regular basis, sweepings, κόπρος and agricultural by-products, (including chaff and straw) were gathered in specific places or collection facilities so that they could be used as manure or fodder at a later point in time (cf. III.3.5; IV.3.4). Built collection facilities for metal working debris such as gate systems and chaplets were also a regular feature close to bronze foundries (cf. chapter IV).

Provisional disposal was also occasionally prescribed by *polis* authorities. They made provisions that the objects and substances removed from the sanctuaries be sold as secondary materials and would, thus, remain in the waste stream for a short time only (cf. IV). A remarkable case of the provisional discard of destruction debris occurred at Miletos after the Persian invasion of the city. The debris was not only removed, as it was the case in the Athenian *agora* (Shear 1993), but was spread out so that a new settlement could be built on top of this layer. The Milesians had apparently agreed to separate and to deposit the destruction waste according to classes of material, so that they would have easy access to it whenever they were in need of a specific material during rebuilding (cat. 47B, 48B).

¹⁶*Cannibalism: Myth of Pelops and Tantal* ↪ *Evaluation of cannibalism*: Hdt. 3.38; Gammie 1986, 171-5.

In times of war, a number of people withdrew their valuables from the use-cycle by depositing them in the ground with a view to retrieving them once the danger had passed. Xenophon (*Poroi* 4.2, cf. app. G.1) stated that this was also standard practice for surplus silver in times of peace. If the people who had deposited their valuables were unable to find them after the war, or if they were killed, their deposits became *de facto* waste.

Provisional discard was not restricted to the profane world, but also occurred in the sanctuaries of Demeter, at a feast just before the Thesmophoria (Kron 1992a, 616 n. 25). At this feast, the rite of *μεγαρίζειν* was performed, which consisted of 'inserting' (*ἐμβάλλειν*) pigs and other fertility objects, including biscuits in the shape of snakes and male genitalia, and fruits and pine branches into *μέγαρα* (crevices in the ground or even artificial pits).¹⁷ This action was not described as throwing, but rather euphemistically as the 'laying down' of objects, if Deubner's (1932, pl. 35) and Nilsson's (8, 464) interpretation of the term 'θεσμοί' is correct. These objects did not remain in the ground for long, since they were retrieved by cult-servants, the so-called 'scoopers' (*ἀντήρια*) in order to be mixed with seeds and then be thrown out. As Simon (1983, 21-2) noted, this rite may celebrate the discovery of manure.

III.1.9 Waste disposal as a magic rite

Casting could also play a crucial role in magic rites. The superstitious man in Theophrastos' *Characters* (16.2, for example, threw three stones across the street (*διαβάλλειν ὑπὲρ τῆς ὁδοῦ*, when he saw a sinister animal, such as the weasel.

III.1.10 Waste disposal as an insult

The practice of throwing foul vegetables or eggs over unpopular politicians, which is still quite common in Germany to day, appears to have been unknown to the ancient Greeks. The only Greek reference to throwing waste over somebody to express the low esteem in which this person was held is in connection with the Cynic Diogenes, in the realm of the symposion (D.L. 6.46). More widespread seems to have been the practice of intentionally discharging body wastes over people or monuments to express the low esteem in which they were held, this practice was a popular source of

¹⁷Rite: Burkert 1972, 284 n. 5; Deuene 1989b, 244 n. 33; Kron 1992a, 616 n. 24; Straten 1995, 78 Interpretation of *μέγαρα* Kron 1992a, 617 with n. 28-31. Interpretation of objects: Winkler 1994, esp. 276, 299. Term Schol. on Ar. Ec. 18.

humour in comedy.¹⁸ The dithyrambist, Kineas, the most blasphemous of men, was frequently referred to as having defiled monuments, particularly the small ones dedicated to Hekate that stood outside people's houses.¹⁹ A rare depiction of emptying an urinal over a person may be seen in cat. 221, where the old nurse empties a two-handed vessel over Herakles, who was lying in front of the house of his beloved one. Emptying (κατασκεδανύειν) the content of chamber-pots (ἀμίδες) over people or befouling them with urine also occasionally ended up in court. Demosthenes, for example presented a case, in which these actions were accompanied by physical violence in the Athenian fort of Panactum, and discussed it as an example of brutality and outrage (ὑβρις) on the part of the drunken and abusive offenders (D. 54.4). Spitting upon someone and probably also farting towards someone seem to have been a common expression of low esteem.²⁰

III.1.11 Waste disposal as a crime

Private legal cases provide evidence that the exposure of children was regarded by some individuals, such as Isokrates (12.122), as a crime unparalleled in its wickedness (cf. III.5.1). Disposal activities were also considered a crime, when they occurred at places where it was legally prohibited. Dumping of waste in streets (αναχώννεσθαι) was considered serious enough an offence that it could be taken to court (D. 55.22, cf. II. n. 8; app. G.1). The disposal of κόπρος in some sanctuaries may also be categorised as illegal waste disposal. The seriousness with which this offence was regarded in some places is indicated by the fact that the witness who fails to report the illegal action may be punished as seriously as the offender himself, and that the informer was sometimes rewarded with half the fine.²¹

III 1.12 Waste disposal as laying waste

Destruction was an action by which objects passed out of the use-cycle without being formally dumped. The Greek terms for 'laying waste' include πέρθειν, πορθοῦν, καταβάλλειν, συγχώννεσθαι, τέμνειν and τὴν πόλιν ἀνάστατον

¹ Ar. V. 394 (statue of Lykos); Ar. Pl. 1 84 (temple of Zeus the Saviour); Henderson 1975, 190-1 n. 406, but not the example listed in II.3 6, as these are the result of drunkenness and lack of control. This strategy is also documented for the Middle Ages (Illi 1987, 61-3).

¹⁹Ar. Ec. 329-30; Ra. 153, 366. Cf. Henderson 1975, 190-1 n. 406.

² Spitting: Ar. Pax 816. Farting: II.3.6

²¹Punishing silent witnesses: e.g. Dillo 1997, 125. Rewarding informers: e.g. Sokolowski 1962, no. 53.10-3 (Delos, sanctuary of Demeter and Leto); 1969, no. 37.9-10 (Athens, shrine of Apollo Erithaseos).

ποιούv.²² The intention of these kinds of hostile activity varied from person to person and from situation to situation. Whilst Hannibal is said to have destroyed Roman material culture in order to launch an assault (προσβάλλειν), Timoleon is claimed to have laid the buildings and publicly displayed monuments and statues of the tyrants of Syracuse in ruins to mark the end of their tyranny.²³ When divine forces caused the destruction of buildings or perjurers, the aspect of divine punishment may have been prevalent in the perception of destructive actions (e.g. *Ar. Nu.* 396).

It was not always necessary to cause large-scale destruction in order to make a serious political or religious statement, as the reaction of the population to the so-called mutilation of the herms in 415 B.C. shows (cat. 49; cf. Furley 1996; Davidson 1997, 296). The objects and the time were carefully chosen, since Hermes was the god of travel and good fortune, of thresholds and new ventures and Athens was about to conduct its Sicilian expedition under Alkibiades. After the Sicilian disaster, the fact that a group dedicated by the general Kimon after the first victory of the Delian League over the Persians in c. 476-5 B.C. was amongst the mutilated herms may have had special significance, as the Sicilian expedition marked the beginning of the end of the period of imperial conquest.

Destruction debris was removed from sight during the rebuilding of a city, as we know, for example, from the Athenian *agora* (Shear 1993) and the settlement at Kalabaktepe, Miletos. Occasionally, however, a small number of buildings or even an entire site were left in ruins. Examples of the former include the Bronze Age site of Lerna, where a stone circle marked out the destroyed House of Tiles (Antonaccio 1995, 175) and the well known case of the Akropolis of Athens, which was not rebuilt after the Persian invasion of 479 B.C. until Perikles' rebuilding programme of the mid-fifth century. The case of the Akropolis may be explained by the so called Oath of Plataia as a war memorial, but since this oath is probably a first-century B.C. fake (Lindenlauf 1997, 73 n. 203), it is not clear whether the Athenians indeed intended to make such a symbolic statement when they left their Akropolis in ruins. That the Athenians used debris left by the Persian attack to make their view of the Persian War and the destruction of the Akropolis known is plausible in the light of the conspicuous reuse of this debris in the walls of the Athenian Akropolis (cf.

²²Πέρθειν: *A. Pers.* 176. Πορθούv: *Ps.-Appol. Lib.* 2.7.1; 3.7.3. Καταβάλλειν: *Hdt.* 9.13.2. Συγχώννεσθαι: *Hdt.* 9.13.2. Τέμνειν: *And.* 1.101.3. Ἀνάστατον ποιοούv: *And. ag Alkibiades* 23.

²³*Hannibal*: *D.S.* 13.86 1-3. *Timoleon*: *Plu. Timol.* 22, *D.S.* 70.4; *Cor.Nep.* 2.3. Cf. cat. 105; *D.S.* 11.38.5; Weeber 1990, 49-51.

IV.2.5) and the ideological readings of the Persian Wars, in particular in classical Athens (Hölscher 1998a, 98, 99).

III.1.13 Waste disposal as gift giving

Another way in which objects could pass out of the use-cycle without being formally discarded was the making of offerings to chthonian gods, heroes and the dead.²⁴ Herodotos (7.54.2-3) used the terms εἰσβάλλειν (throw into) to describe Xerxes making of offerings to the sea. Since he used the term ἀποβάλλειν in connection with Polykrates' disposal of his ring, it may be concluded that βάλλειν was used for any 'throwing into' activity regardless of the intent. The motivation, codified in the prefix, appears to have been more important: whilst Polykrates aspired to get rid of his ring forever, Xerxes made sure that he would not miss his target. The locations at which these gifts were deposited were deep fissures, pits, and the sea. Besides the earth and the sea, offerings were entrusted to the consuming power of fire. From the sixth century, at the annual cult of Herakles on the slope of Oite, sacrificial animals, all kinds of votive offerings, including jewellery, vases and bronze statuettes, as well as weapons and knives, nails and keys were thrown into the so-called funeral pyre of Herakles (Papadakis 1919, cited in Demakopoulou & Konsola 1981, 70).

III.1.14 Greek terms for waste disposal

That waste disposal was a daily activity, well known to everybody, can be deduced from the degree to which disposal practices were used in metaphors. The phrase 'let's discard the powerful', for example, Andokides (3.29) expressed as 'τὴν δύναμιν ἀπεβαλόμεθα'.

Verba composita of βάλλειν appear to have been most frequently used to refer to different kinds of disposal practices in legal documents and literature.²⁵ As I noted at III.1.12, this verb was employed for any casting or 'throwing into' activity, no matter whether it was disposal or a dedication (cf. III.1.12), permanent or provisional discard (Hom. *h Ap.* 318; X. *Oec.* 20.11). More important was the 'direction' in which the throwing action was made. Whilst the prefix ἀπό- denoted

²⁴Offerings as gifts: Baal 1976; Burkert 1987, 47. *Fissures*: e.g. cat. 4. *Pits*: e.g. Hom. *Od.* 10.513-40; Paus. 2.22.3. *Sea*: E. *Hel.* 1266; D.S. 13.86.3

²⁵e.g. *IG II²* 38.37-8 (χοῦν καταβάλλειν); *IG XII 2* (καταβάλλειν); Sokolowski 1962, no. 24.8-9 (κόπρον (καί) σποδὸν ἐκβάλλειν), no. 50.3 (κόπρον βάλλειν κατὰ), no. 53.5-8 (κόπρον (καί) σποδὸν ἐμβάλλειν); 1969, no. 3.11 (ὄνθον ἐγβάλλειν), no. 57.6 (κόπρον ἐσβάλλειν), no. 108.1-2 (ἐκκαθάρματα βάλλειν), no. 115.4 (κόπρον ἐξβάλλειν, ἐγβάλλειν).

the separation of the person throwing the object and the object itself (cf. III.1.2 riddance), prefixes such as εἰς- and ἐν- denoted the direction in which waste matter was thrown (e.g. dedication or unwanted person thrown into the sea). *Verba composita* of βάλλειν occurred in connection with a wide range of things, including objects, substances and corpses (cf. III.5.1; app. F). Owing to the high degree of inclusiveness, a general prohibition of waste disposal practices could be expressed in just two words, as the inscription on a brick stone, found at Eresos in Lesbos, indicates. The phrase 'μη καταβαλλ', a shortened version of 'μη κατάβαλλε' or 'μη καταβάλλετε', meant do not urinate/defecate or drop anything here (Oikonomides 1988).

Another verb frequently used to denote a wide range of disposal activities for different substances and items was ῥίπτειν. Its meaning ranged from riddance to removal (e.g. Hom *Il.* 19.268; Arist. *EE* 1235A). Some authors used ῥίπτειν and ἀποβάλλειν synonymously, whilst others made a clear distinction between the two (cf. III.1.2, 12). The term προίασθαι could also denote various types of casting activities. However, except for by Demosthenes, it was less often used.²⁶ Occasionally, the verbs φέρειν and perhaps even ἄγειν, which mean 'carry' or 'drive away', referred to disposal practices as well as τίθεσθαι, which means 'to put down', and αναχόννεσθαι ('to throw rubbish into the streets').²⁷ Verbs with a more limited meaning include καταποντίζειν ('to throw into the sea') and χοῦν ('to pour out', and occasionally 'to throw down').²⁸

III.2 Sanctuaries

There is a consensus amongst archaeologists that sanctuaries were considered to be special places, fundamentally different from the ordinary and mundane (cf. II.5). This view is based on the measures which were undertaken to protect the sacred from all kinds of dirt, including *kopros* and 'social dirt' (app. E; II.4.2, 5), and also on the fact that only perfect animals could be offered to deities. Less robust animals were considered good enough to be slaughtered and consumed by humans in the settlement context (Peters & Driesch 1992), but not to be used for sacrifices. This view also presupposes that votive offerings and the remains of sacrificial animals were sacred and required special attention and care. In this section, I discuss to what extent this view is sound and whether it should be modified, with reference to the

²⁶e.g. D. 3.9; 18.200 19.18.

²⁷Φέρειν: BSA 194 -5, 106 no. 2.7-8. ἄγειν: Skolowski 1969, no. 57.6 (ἄγειν, cf. Ziehen), no. 67.28-9. Τίθεσθαι: Hdt. 7.54.3. Αναχόννεσθαι: D. 55.28, cf. app. G.1.

²⁸Καταποντίζειν: Hdt. 4 154 3; D. 32.23. Χοῦν: IG II² 38 37.

treatment of votive offerings, *ostraka*, sacrificial and consumption waste as well as organic waste.

III.2.1 Votive offerings

At some point in the eighth century B.C., wealth was no longer deposited in graves, but begun to be publicly displayed in sanctuaries (Morris 1989, Bräuning in press). This shift in emphasis from burial places to sacred places marked the beginning of what Burkert (1987, 12) has called 'votive religion'. The expression of religious feelings primarily through votive offerings and the so-called 'οὐ φορά' clauses prohibiting the removal of ἀγάλματα and other objects from precincts resulted in sanctuaries being filled with objects. Modern scholars have acknowledged that measures were undertaken to free up space in overcrowded sanctuaries and that sanctuaries were cleaned up if they had been destroyed for any reason (e.g. Karagheorgis 1999, 181). The activities leading to the final deposition of votives *in situ* (cat. 164), in underground structures such as ditches (cat. 103), wells (cat. 51), pits (cat. 86), cuttings (cat. 87) and *megara* (cat. 4), or on the ancient surface have been almost exclusively interpreted as careful burial practices.²⁹ This interpretation seems to be informed by the assumption that the evaluation of objects in their use-life influences their deposition method and that all votives were carefully treated whilst on display or in use (e.g. Amandry 1986, 205). The idea that all ancient votives were buried is so predominant that even votives that have been described by scholars as 'scrap metal' (*Schrott*) or as having been 'thrown away' were at a later point described as 'burials' by the same author (Hansen 1996, 267).

A discussion of the deposition of votive offerings in accordance with my framework, must address, firstly, the crucial issue of how rubbish dumps can be identified in the archaeological record. The meaning of prehistoric deposits from Roman Iron Age settlements in southern England has recently received some attention, and the development of criteria for the identification or reinterpretation of deposits as rubbish dumps will here be based on this literature.³⁰ The extent to which the conclusions of this work can be applied to Greek sanctuaries of the historical period and the degree to which they have to be modified are discussed. I propose a number of rubbish assemblages which, in my opinion, contained votive offerings, and briefly analyse them in terms of their location, the kind of votives they

²⁹e.g. Ricciardi 1986-7; Kron 1992a; Price 1999 59. *Contra*: e.g. Dawkins 1929b, 14; Brann 1962, 129; Held 1993, 373. *Neutra*: Pimpl 1997, 72

³⁰Hill 1995; 1996; Murray 1997, 4, 500; Strasser 1999; Bradley 2000, 47-63; Walker & Lucero 2000.

contained and the circumstances under which the votives were considered waste and/or disposed of. I also address the questions of whether there were specific dumps and rubbish heaps for votives and whether there was such a category as the 'disposable votive offering'.

Hill (1995, but 100-1; 1996, 26, 27) suggested that 'ritual pits' can be distinguished from 'rubbish pits' by analysing their location and their 'form', that is to say the degree of care involved in their deposition. Whilst the former were carefully deposited at places of social significance, the latter were 'just' discarded at convenient places (Hill 1996, 26; cf. Wait 1985, 151). The location of *bothroi* is not a valuable criterion for my data, since, for example, the location of a pit close to an altar would not necessarily imply that the objects deposited there had actually been buried. The degree of care involved in the deposition of votives has far greater interpretative potential. If assemblages were carefully structured or arranged, then it is indeed plausible to call them votive burials. This view was shared by Kron (1992a) who discussed votive assemblages found in the sandy ground of the sanctuary of Demeter at Bitalemi that had been either stacked in rows or arranged to form a specific shape as burials and ritual deposits (cat. 195-6). If the distinction between carefully arranged and 'just' disposed objects is accepted as characterising deposits resulting from ritual activity and dumping respectively, then the stratified deposition of female statues, which represent either *korai*, priestesses or goddesses behind the northern wall of the Athenian Akropolis suggests that both forms of disposal activity may have occurred in the same deposit (cat. 37). Whereas the lower two strata contained architectural and sculptural fragments mixed with earth (rubbish deposit), the uppermost layer contained decapitated statues laid in a row with the heads placed close to the bodies (burial). Unfortunately, most excavation records do not give a detailed account of the structure of deposits. Instead, they often describe the assemblages as a deposit or a *bothros*, implying that this terminology determines unequivocally the nature of the assemblage under discussion (e.g. cat. 106; Held 1993, 373, 375). This carelessness makes it impossible to apply Hill's criterion of 'just' disposal to archaeological data.

The structure of the fill is but one index of careless deposition. I believe that the depth of the disposal facility is another. More specifically, I believe that votives found in deep structures such as wells and cisterns may not have been deposited there in order to ensure that the sacred property of a deity was left untouched, as Bol (1985, 14) and Treister (1996, 113) have suggested, but in order to place them aside, somewhere out of the way. This idea is based on the fact that the person who threw

votives into deep structures risked breaking them and thus no longer conceived of the votives as precious or significant (e.g. cat. 26). With respect to III.1.12, the validity of the depth of depositional structures in the identification of dumped fills is restricted to the sanctuaries of Olympian goddesses.

Apart from the 'unstructured' structure of the assemblage and the depth of the disposal facility, the effort involved in the creation of a depositional facility may be significant for the identification of rubbish deposits (cf Hill 1995, 2). Depositional facilities, which were created with much effort - such as the *bothros*, which was made of reused architectural elements from the Athenian *agora* (cat. 188) - can be termed without any doubt de facto disposal facilities. By contrast, I would not have termed a big and heavy votive offering left on top of an alluvial layer, as in the Heraion of Samos, as 'buried', as Kopcke (1968, 306) did, but rather disposed of, if human agency was at all involved in this depositional process. We cannot make a general statement as to whether dedications found in recycled shallow underground structures or newly dug pits were considered rubbish or not, since pits have been dug both as rubbish pits (e.g. Olynthos (T. Whitelaw pers. comm.)) and to function as burial places for carefully folded *sphyrelata* (cat. 40; cf. III.2.3).

A further criterion may be the existence of mixed fills, either stratified or unstratified. In my opinion, an example of the former are the fills of the pits a and c, uncovered in front of the Porch of the Telesterion at Eleusis and which consisted of separate layers of dumped votives, working debris and *stelai* (cat. 26). An example of the latter are fills of wells in the Athenian *agora* (cat. 53-6), if Brann's (1961, 306; 1962, 129) assumption is right that the well-fills came from 'rubbish heaps,' which 'in turn had served homes, graves, and sanctuaries alike'. On a theoretical level, unstratified mixed fills are highly indicative of the disposal of votives. The problem, however, lies in identifying the realms or contexts in which the objects were originally used (and disposed of). In the case of the Athenian examples discussed by Brann, for example, the *pyxis* may have come from a grave, as Brann stated, but it is also possible that it was used in *sysstia* or in settlements. More importantly, the terracotta figurines may have indeed come from the Eleusinion, but the possibility cannot be excluded that they played a role in the *sysstia*, if *sysstia* were also held in a ritual setting. In this case, the fill could still be called a mixed one, but it would no longer play a role in my discussion on the identification of the disposal of votives.

Similarly ambiguous for the identification of rubbish dumps is the condition of votives, because depositions often occurred as a result of a destruction of a sanctuary (e.g. cat. 39). The distribution of the *korai* in the three layers immediately behind the northern wall of the Athenian Akropolis, however, indicates that in some cases the condition of dedications influenced the way in which they were finally deposited (cat. 37). Whilst the fragmented torsos were dumped in the lower layers, which served as construction fill for the erection of the Akropolis wall, the more intact *korai* were buried in a row next to each other in the upper layer, which may have been filled in after the upper part of the wall was finished.

More useful is Hill's (1995, 76) remark that a 'ritual deposit' would not fulfil a practical function, at least from a modern perspective. Thus, the characteristic of a rubbish assemblage is that it has a practical function (including storing, levelling, serving as a platform, etc.) and can, therefore, be called (de facto) recycled. Deposits which served a practical function have been found in wells, if they were filled in the course of a programme for the rearranging and rebuilding of sanctuaries (e.g. cat. 1). (De facto) recycled objects were also contained in levelling and construction fills for the building of temples, treasuries and stadia. Fills I interpret as rubbish deposits include the two lower layers of the fill of the northern wall of the Akropolis of Athens (cat. 37), the so-called Black layer of Olympia (cat. 6), and the foundation fills at Isthmia, Nemea and Larisa-on-the-Hermos (cat. 12-5, 28, 31). The construction fill of treasury D at Samos is, in my opinion, the most convincing example of a change in the attitudes towards votives, because here, votives were associated with working debris, intact ceramic offerings were destroyed in the course of the levelling operations, and the evenly spread layers were arranged in order to provide a stable foundation in the swampy area (cat. 238).

I therefore suggest, in summation, that we consider the following assemblages as rubbish deposits: cat. 1-2, 6-10, 13-6, 19. Judging from this small sample of dumped fills, it can be concluded that the social significance of votives could change and that in certain circumstances they were considered waste (cf. IV.2.1). They were dumped in the course of the rearrangement of the site, including the erection of new temples, at Olympia, Isthmia, Samos and Athens (Gebhard 1997, 91). Votives entering the waste stream could be intact and broken, small and large, or made of clay, metal or bone. In the case of the fragments of tripods found all over the sanctuary of Zeus in Olympia (cat. 238), it is likely that they were removed from display because they were no longer fashionable (cat. 19).³¹ When discarded and/or

³¹Dinsmoor 1934, 417; Bol 1985, 14 with n. 26.

put to a practical function, intact votives could be destroyed so as to be able to fulfil their new function (cat. 238) or could be ritually broken. The latter has been suggested for the large number of professionally cut geometric tripods (e.g. H. Kyrieleis pers. comm.), but I suggested at IV.2.1 that they were recut in order to be melted down. Votive offerings have been found not only within (what is nowadays considered) the *temenos*, (e.g. cat. 13; Kron 1992a, 644; Held 1993, 374), but occasionally outside of it (cat. 14). In addition, votives were dumped on the spot, as in the case of the sanctuary of Isthmia (cat. 15), but also all over the sanctuary, as in the case of the sanctuary of Zeus at Olympia, where fragments of tripods were found throughout the sanctuary (Maaß 1978).

It is difficult to say whether sanctuary dumps in the form of underground structures or open-air heaps were a regular feature of Greek sanctuaries. The only structures which could perhaps be interpreted in this way are the two pits (a and c) found at Eleusis (cat. 26). There are, however, a number of areas within sanctuaries which have been viewed as formal collection sites for broken and unwanted votives: if the terracotta figures found in the wells of the *agora* came from the Eleusinion, it is likely that they were thrown onto a rubbish heap, which may have been situated outside the boundaries of the Eleusinion, before they were finally deposited. Sanctuary dumps have also been mentioned in connection with the northern side of the temple of Artemis Orthia at Sparta and the sanctuary at Siphnos.³² It is also possible that the masses of cut down tripods found throughout the sanctuary of Zeus at Olympia were heaped up close to the place where they had been professionally cut with a sharp cutting instrument, whilst clamped in a vice.³³ If so, it is reasonable to argue that heaps did not only function as collecting places for recyclables, but also as dumping places for tripods which were to be thrown away or used as construction fill.

With the term 'disposable votive', I mean a votive which was dedicated with a view to being thrown away afterwards. Most votives seem to have been displayed for quite some time before they were either ritually deposited, melted down or thrown away. However, at the Heraion of Samos a number of ceramic vessels with a dedicatory inscription to Hera have been found in wells, which Buschor interpreted as Pilgrim's waste.³⁴ These vessels had probably been used only once after the sacrifice or for the time during which the pilgrim stayed at the sanctuary, before

³²Sparta: Dawkins 1929b, 14. *Siphnos*: Brück 1949, 3-5, 18.

³³*Traces of vice-like tools on the fragments*: Maaß 1978.

³⁴Buschor 1937, 204, cf. Kron 1988, 145. *Sacrifices in material*: Furtwangler & Kienast 1989, esp. 86-7.

being disposed of. A large number of broken ceramic pieces without dedicatory inscriptions have been found in the wells of the sanctuaries of Samos and Olympia (cat. 17-25). Whether they too can be termed disposable votives would depend on their ancient meanings. With respect to the careful deposition of uninscribed cult ceramics with terracotta figurines in the sanctuary of Demeter at Bitalemi, it is reasonable to argue that at least in some sanctuaries the vessels used in ritual meals were treated and, thus, understood as votives.

Old or destroyed votive offerings were not the only rubbish which accumulated in some sanctuaries. Shells dedicated to gods were disposed of at Tamassos, Kypros (Nobis 1976-7, esp. 272). and at Samos (Boessneck & Driesch 1988). Occasionally, disused civic records and broken vases were not disposed of, but devoted to a deity.³⁵ Linders (1992) drew attention to the fact that counterfeit money which was to be removed from circulation could be dedicated to sanctuaries rather than being melted down. These procedures are evidence that maculate objects or waste crossed the boundaries of sanctuaries, and entered them. The tolerance of imperfect goods within the boundaries of sanctuaries is surprising when considering that great care was taken in the selection of immaculate sacrificial animals and in the protection of sanctuaries from any kind of dirt (cf. app. E, s.v. sanctuaries). This gives rise to the provocative question as to whether sanctuaries were considered in some places and under certain circumstances as rubbish dumps and whether the profile of sanctuaries as special places has to be modified, in the sense that sanctuaries claimed to be special places, but that this did not mean that everyday practices, including disposal practices, were totally excluded from them.

To conclude, votives were not normally dedicated with a view to being disposed of, but with the intention that they would be on display. The disposable cult vessels used for a short time in the sanctuary of Samos are an exception. That this cannot be considered a general pattern can be deduced from the deposition pattern of the sanctuary of Demeter at Bitalemi, where nearly all of the cult vessels were buried in groupings which required much time and effort.

Old-fashioned dedications destroyed during wars were not always carefully buried, but also dumped. The earliest disposal practice of my sample occurred in the pan-Hellenic sanctuaries at Olympia in the first half of the fifth century, making use of a technique already used in the so-called *tyrannis* debris (cat. 35): the concentration of waste objects in underground deposits, which would remove them

³⁵Records: Murray 1977. Vases: Sparkes 1991, 125.

from sight and at the same time make use of them as construction fill. Since the rearrangements made at Olympia were part of a large-scale 'wave of renewal and modernisation', which included large and small sanctuaries all over Greece (Sinn 1981, 56), dumped votives were likely to have occurred far more often at this early stage than I have been able to demonstrate. Deposits of votives which had been carefully deposited and of those which had been randomly deposited were not always made at separate places, but could be separated by only a layer of working debris, as in the case at the northern side of the Akropolis of Athens. It is possible that votive dumping areas existed, which, in contrast to *kopros* dumping grounds (cf. III.2.3), were probably located within the *temenos*. These gathering places most likely supplied the material with which underground structures were filled, areas levelled, stadion walls constructed, and work platforms built.

Dumped fills containing different kinds of dedications may be identified through analysis of the find assemblage in reference to its structure, composition and the purpose it served ((*de facto*) recycling) on the one hand, and the disposal facility with respect to its depth and the effort spent to create it, on the other. The prototype of a dumped fill is the fill of the well 11StN in the Zeus sanctuary of Olympia, because it is mixed fill (containing working debris, ceramics, bones, broken bronze votives) filled into a deep structure and probably functioning to level an area, so that the northern wall of stadion III could be built (cat. 21).

III.2.2 Ostraka

Four *ostraka* were found in the fill of the south side of the Parthenon (cat. 35). As the stratigraphic information for sherds is valueless, the exact find spot remains unknown.³⁶ Thus, it is unclear as to whether the *ostraka* were found in the earliest and lowest layers functioning as construction fill or the higher layers functioning as extension and levelling fill. It can only be noted that they entered the place from which they were excavated during one of the rearrangements of the area south of the Parthenon. Most of the fill from the south side consisted of earth and objects from the Akropolis, including fragmentary architectural features, broken vessels and a few sculptural remains. The *ostraka* may have been votive offerings as well. However, it is also possible that they were transported from the *agora* or the Kerameikos to the Akropolis to form a background earth fill, as it was quite likely the case of ground

³⁶Lindenlauf 1997, 65-6. *Contra*: Willemsen 1991, 144

white *lekythoi*, which were also found in this mixed fill.³⁷ If so, this would be another example of inter-contextual waste disposal and de facto recycling. Conveying from the lower city was labour intensive, and such an operation would not have been conducted if there was not a serious reason for it, such as a shortage of fill for the gap between the Parthenon and the southern Akropolis-wall requiring around 40.000 m³ of fill material.³⁸ It is noteworthy that material from the Akropolis also ended up in the *agora*, such as sculptural fragments.³⁹

A large, pure *ostrakon* deposit has been found in the north slope of the Akropolis (cat. 82). It is not at all clear as to why the 191 *ostraka* belonging to a single *ostrakophoria*, which may not even have been conducted, were deposited at this spot.

III.2.3 Sacrificial and consumption waste

The Greek term *θυσία* embraced a multiplicity of types, rites and meanings (Nilsson 1968, 132-57; Burkert 1981, 91-125). According to Theophrastos (cited in Porphyr. abst. 2.24), animal sacrifices can be classified according to their aim and the motivation behind them, namely worship, thanksgiving and beseeching. In addition, private animal sacrifices can be distinguished from public sacrifices.⁴⁰ Moreover, sacrifices, where sacrificial victims were consumed both by immortals and mortals can be distinguished from those where this did not happen (*θυσία ἄγευστοι*, e.g. cat. 4). Sacrifices, which share the characteristics of not providing a portion for the human worshipper, included sacrifices as different as those known as *ἐναγίζειν*, where the animal was burnt whole for a deity, and purificatory sacrifices involving the killing of a pig with which some sanctuaries and people such as Orestes were purified.⁴¹ In terms of depositional patterns, it is characteristic for the *θυσία ἄγευστοι* that the victim disappeared either by burning it to ashes or by hiding it away (e.g. Ziehen 1942, 597-8, 622; Stengel 1972, 99).

In this section, I will focus on regular and non-recurring *ad hoc* public sacrifices sponsored by the *polis* or by one of its sub-units, such as *phratries*, tribes and *demes*, or even an individual where gods, priests and the cult society were given a share of

³⁷Kolbe (1936, 48) also suggested that architectural remains were transported from the lower city to the Akropolis, although he did not give any concrete examples. Cf. Bruckner 1915, 5; Riemann 1940, 150; Kleine 1973, 111.

³⁸Calculated without layer I (Kolbe 1936, 33-4, 47).

³⁹Fragment of a *lore* (Harrison 1965, 21 no. 75) and of a poros lion head (Harrison 1965, 31 no. 94).

⁴⁰Walter 1990, 40; Rosivach 1994, 9-10 with ns. 1-5.

⁴¹*Vase-paintings*: Straten 1995, 4. *Texts*: Stengel 1972, 19-20, 22; Rosivach 1994, 15; Parker 1996, 10 with n. 42; 21-6.

the sacrificial victim.⁴² More specifically, I discuss spatial depositional patterns of residues, which occurred after the killing of the sacrificial animals, namely sacrificial waste, consumption waste, *bukrania* and disposables within the parameters of time and space. It is perhaps worth pointing out that the term 'sacrificial waste' used in this section is an analytical term. This terminology is informed by the view that ashes and bones were the by-products of consumption processes. Whether the various residues were viewed and valued as 'waste' or 'rubbish' by ancient Greeks remains to be ascertained. Criteria for the identification of rubbish deposits containing the god's or the human's share have not been explicitly discussed so far. This is partly due to the fact that Nilsson's (1940, 74-5) statement that the remains of the god's and the human's portion were considered sacred at all times and at all sanctuaries has been influential for a long time. Following the list of characteristics proposed for rubbish deposits of votive offerings in III.2.1, I shall identify deposits containing faunal remains as rubbish deposits when they (1) fills containing faunal remains and materials from profane activities; (2) assemblages which fulfil a practical purpose, for instance a working terrace; (3) careless deposition in an existing structure.

Before being able to analyse the faunal reports, we must single out sacrificial remains and consumption debris. Although zooarchaeologists regularly classify faunal assemblages found in sanctuaries as 'sacrificial remains', 'food debris' or 'consumption waste', they seldom discuss their classificatory methods (e.g. Ruscillo 1993, 208). Reviewing the literature, the classificatory process seems to be informed by the criteria of consistency of faunal remains and composition of faunal assemblage both in terms of bodily parts and species.⁴³

The criterion of consistency - ash and heavily burnt and chalcinated residues symbolising the remains of the god's portion and unburned bones being the residues of the human's share) is based on statements of ancient authors that the god's and the human's portion were prepared and consumed in distinct ways: whilst the sacrificial parts consisting of defleshed bones covered with fat were burnt o ashes (Hom. *Il.* 1.495-6; 2.423; *Od.* 3.457; Paus. 2.10.5), the remaining portions of the sacrificial animal were boiled or stewed. That the distinction ash:unburned bones and burning:boiling is not an absolute set of oppositions becomes clear form

⁴²*Distribution of meat*: Detienne 1989b, 3. *Procedure*: e.g. Bergquist 1993, 12-7.

⁴³*Consistency*: e.g. Wolff 1978, 115; Bammer 1978, 145; Ruscillo 1993, 206; Davis 1996, 181. *Body parts*: Boessneck & Driesch 1985, 22; Boessneck & Driesch 1988, 40; Tuchelt 1992, 74 n. 55; Forstenpointer *et al* 1999, 226 with n. 8. *Species*: Peters & Driesch 1992, 117-9; Ruscillo 1993, 208.

ancient texts and faunal assemblages. In terms of the opposition ash:bone, a reference by Semonides to a woman helping herself to sacrificial offerings which have escaped burning, seem to indicate that the θεομοιρία consisted of edible parts and, more importantly, that it was not always burnt to ashes.⁴⁴ This is supported by the condition of bones, which are usually associated with the god's portion (see below). *femur* and *pelvis* of the altar of Aphrodite Ourania at the Athenian *agora* (cat. 90) are only chalcinated or covered with a greenish colour (cf. Reese 1989, 64) and *femur* from a deposit of the sanctuary of Aphrodite at Zeyintepe, Miletos (Peters & Driesch 1992, 125). The bad burning results were explained in the first case by insufficient fat, while in the latter case the thigh-bones may not have been defleshed. In terms of the opposition burning:boiling/stewing,

The body part analysis can be based on literary sources, which mention the composition of the god's portion and depictions of sacrifices on archaic and classical vases. A careful analysis of the relevant textual sources on the god's share (θεομοιρία) was undertaken by Straten, whose results I summarise in the following table:

Author part	Thigh - bones	Fat	'Οσφύς	Tail	Gall bladder	Various
Hom. <i>Il.</i> 1.460-3; <i>Od.</i> 3.456-9; 14.427-9	x	x				raw meat from all over the body
Hom. <i>Od.</i> 3.341						tongue
Hes. <i>Th.</i> 540-1		x				white bones
A. <i>Pr.</i> 496-9	x	x	x			
S. <i>Ant.</i> 1005-11	x	x			x	
Ar. <i>Pax</i> 1053 5	x		x	x		
Ar. <i>Th.</i> 693	x					
Ar. <i>Ach</i> 784-5				x		
Ar. <i>Av.</i> 190-3, 1230-3	x	x				
Pherecr. <i>fr.</i> 28 (Kassel-Austin)	x		x	x		
Eub. <i>fr.</i> 127 (Kassel-Austin)	x			x		
Eub. <i>fr.</i> 94 (Kassel-Austin)		x				
Men. <i>Dys.</i> 447-53			x		x	
SEG 35 (1985) 113; 36 (1986) 206; (3rd c. B.C.)	x					meat from the shoulders

Fig. 7: Composition of the god's portion

⁴⁴Semon. *fr.* 7.56 (West, cf app G.1). Cf. Catull. 59 2-3; Ter. *Eun.* 491; IV.2 3.

Table 7 shows that the god's portion consisted mainly of inedible parts, namely thighbones wrapped in fat, the sacrum stripped of its flesh with the adjacent parts of the skeleton, the tail and the gall bladder.⁴⁵ Faunal remains of altars in some sanctuaries such as that for Artemis Ourania in the Athenian *agora* (cat. 90) consisted of ribs and rib fragments. They suggest that not only the thighs of the hind leg(s), but also of the foreleg(s) with the adjacent parts were burnt. Occasionally, the horncore appears also to have been part of the god's portion, as remains have been found in the altar of Artemis Ourania (cat. 90). Edible parts formed a substantial part of the portion reserved for the deity on a regular basis in the Homeric period. It is difficult to say whether they were also a standard part of θεομοιρία in post-Homeric times or only required for particular deities, such as Demeter and Kore in the inscription from the Attic *deme* Phrearrhioi noted above. As the tongue was the final gift to the Homeric gods and was solely the prerogative of the priest in the classical Ionian cities, then this part of the body of the animal appears to be the only indicator for changes in the composition of the god's share over time.⁴⁶

Sacrificial waste

There is a general consensus among archaeologists that the fundamental shift in *de facto* disposal patterns of ash, from primary *de facto* disposal (ash-altars) in the geometric period to secondary disposal in the subsequent periods, did not reflect a major change in attitudes towards sacrificial remains.⁴⁷ This view is based on the observation that the remains of the θεομοιρία were highly valued, and were annually added to ash altars or were carefully deposited in *pithoi*, *lekanides* or stone-lined pits or crowned with a *stèle*.⁴⁸ The possibility that sacrificial waste may have been dumped under certain circumstances has not been seriously taken into consideration.

A discussion of sacrificial remains within a framework of waste disposal is reliant upon published accounts of contextual studies of animal bone assemblages which examine faunal data in its spatial context (e.g. inside or outside of the *temenos*; within a well or construction layer) and take into account associations of all forms of material culture (e.g. found with votives or mixed with pilgrim's waste). Thus, it

⁴⁵The tail is also depicted frequently burning on the altar at archaic and classical vase-paintings, cf. Straten 1995, 120 with fig.

⁴⁶*Contra*: Straten 1995, 126.

⁴⁷Paus. 5.13.8 (Olympia, Pergamon and Attica).

⁴⁸*Valued*: e.g. Hdt. 4.35. Cf. app. G.2; Antonaccio 1995, 184-5. *Lekanides*: Bruns 1964, 246-7 with fig. 10 (Kabeirion, Thebes) *Pits*: Bruns 1964, 240 (Kabeirion, Thebes); Rusculo 1993, 202, 209 (Mytilene). *Stèle*: Bergquist 1992a; b, 156.

would be possible to identify fragments of *femur* and *pelvis* or ash found associated with rubbish, in construction fills or in wells, which I consider indicative of dumped rubbish (cf. fig. 8; III.2.1). However, it is only recently that archaeologists and zooarchaeologists have understood that faunal remains cannot be studied in isolation, even though this insight has not yet resulted in the publication of a site belonging to my area of study.⁴⁹ Consequently, it is at present very difficult to discuss the deposition of faunal remains in terms of waste disposal.

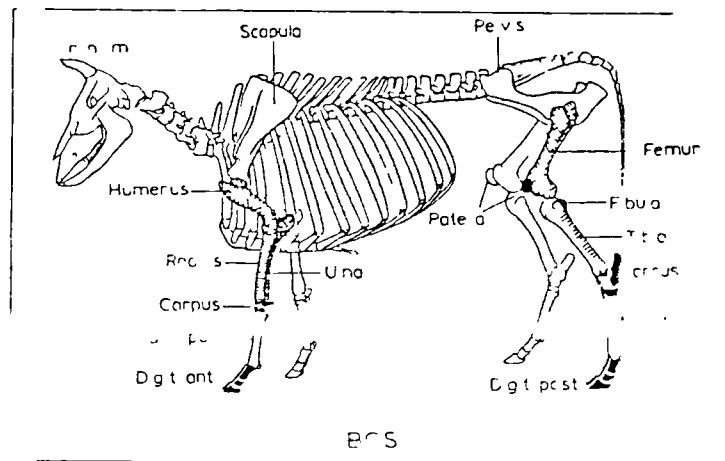


Fig. 8: Terminology of bones of cattle (bos)

Thanks to the kindness of Prof. Kyrieleis, I have had access to the latest zooarchaeological analysis of a sample taken from the so-called Black Layer, below the foundations of the Pelopion at Olympia (cat. 6). This layer covers large parts of the Altis and contained mainly ashy earth, and small, broken votives and bones. The bones from the sample included small fragments of *femur*, *pelvis*, *humerus*, *metacarpus* and *cranium*, some of which show traces of weathering. In section III.2.1 I suggested that this fill can be interpreted as dumped and/or *de facto* recycled fill. This interpretation is also supported by the condition and size of the bones as well as the composition of the faunal assemblage. Whilst the former two factors indicate that the bones had lain on the surface of the Altis for quite some time and that visitors had trampled over them, the latter seems to indicate that the remains of the god's portion had been mixed before their final deposition with *metacarpi* and *crania*, which did not belong to the god's share. Having suggested that sacrificial remains were treated as rubbish in pre-classical Olympia, it would be

⁴⁹The shift in zooarchaeology and archaeology from the use of faunal remains as economic indicators to their use as social and symbolic indicators began in Great Britain in the 1980s (e.g. Moore 1981; Grant 1991; Anderson & Boyle 1996) and may be related to post-processual approaches (Hesse 1995). Tuchelt's (1992) study of bone materials in Didyma reveals important insights into the treatment of bones in a sanctuary, but most of the secondary waste disposal practices have a *terminus ante quem* of the 4th century AD, which is not very useful for my thesis.

interesting to know which long bones had been exploited as secondary material in the so-called workshop of Phidias (cat. 8). If it was *femur*, it would be yet another example of the careless treatment of sacrificial remains and would document that sacrificial remains were always considered sacred.

Consumption waste

When 'οὐ φopά'-clauses forbade participants in a sacrifice from taking their portion of the meat (δημοθεινία) away with them, they consumed it on the spot in erected dining areas which had been either provisionally or permanently constructed.⁵⁰ As most of the structures did not contain a large amount of faunal remains, then they must have been cleaned out from time to time. As with the treatment of sacrificial waste, the opinion that the consumption waste from sacrificial animals was sacred and, therefore, carefully deposited, prevails (Nilsson 1940, 74-5; Kron 1992a, 613, 643-8). The lack of contextual faunal studies makes it difficult to prove the alternative view that consumption waste was indeed dumped.

Faunal assemblages which may be interpreted as dumped consumption waste include, in my opinion, the faunal remains dated to the classical period of the Kabeiron in Thebes (Boessneck 1973). The traces of weathering indicate that they were exposed to the elements before their final deposition and their highly fragmentary condition suggests that they were deposited on the ground and that visitors trampled over them. Another example may be a pit filled with bones and located south of the *oikoi* at Nemea, which has been interpreted as a ritual dining pit and as a sacrificial pit (Miller 1977, 17; 1978, 58). As pits could serve as dumping facilities, it cannot be excluded that the remains of the communal meal were disposed of in this pit. A more detailed publication of this feature and its content may perhaps clarify its function.

A more obvious case of bones which had been dumped are those which were found in the wells in the south-east region (cat. 23-4) and the area below the northern wall of the stadium in the sanctuary of Zeus at Olympia, as here the faunal remains were found in association with working debris (cat. 21) and stones (cat. 22). These faunal deposits varied in terms of the body parts disposed. Whilst some contained only 'bones' (cat. 17) or horns (cat. 22), others contained both bones and

⁵⁰Οὐ φopά'-prohibitions: e.g. Ziehen 1942, 621-2; Rosivach 1994, 19-21. The Sacred laws of Kos from the fourth century B.C. (Sokolowski 1969, no. 151 A.57-8; B.4) clearly show that this prohibition had nothing to do with changing conceptualisations of the sacrifice or the communal meal, because pork and the meat of a male goat from the *same* cultic action were treated differently; whereas pork was not to be removed, the meat of the male goat could be carried away. *Huts*: e.g. Kron 1992a, 620 with n. 50. *Dining-houses*: e.g. Lohmann 1992, 35 with n. 26 (references).

horns (cat. 24), bones and a skull (cat. 19) and bones and *astragaloi* (cat. 20). The deposits also varied in terms of the concentration of their finds and the species of the finds. Catalogue entry number 23 contained a large number of bones from large animals, whilst others deposits contained a small of number of bones of goats (cat. 24) and rams (cat. 18). Since the bones have not been identified, it is not clear whether these finds document the disposal of the remains of the god's or the human's share. They do show, however, that skulls were not always considered important items, requiring a formal burial.

III.2.4 Organic waste

In this section I discuss organic waste management from two perspectives: firstly, through a brief reconstruction of the probable deposition history of some types of organic waste, and secondly, through the issue of public toilets within sanctuaries.

We have documentation relating to a number of sanctuaries stating that faeces (*kopros* or *onthos* in the case of the Hekatompedon inscriptions of Athens; cf. II.1.3) was not to be dumped within the boundaries of the sanctuary.⁵¹ The sanctuaries at Epidauros and Delos also prohibited the disposal of ashes (*spodos*) inside of the sanctuary (cf. III.1.3). What exactly was meant by 'excrement' is not quite clear owing to the ambiguous nature of the term, and the probability that it varied from sanctuary to sanctuary. The term *κοπρίζειν* in the Argos decree may have prohibited defecation within the sacred space. The *kopros* which was not to be dumped in the sanctuary at Chios was animal dung, as the relevant passage in the Sacred law refers to sheep and swine. The acts which the laws forbade varied widely, and most likely depended on the specific nature of each sanctuary. The sanctuaries that were concerned with the possibility of *kopros* being thrown from outside the *temenos* into it, were probably located close to land that was used for agricultural and pastoral purposes. If so, then they attempted to prevent the dumping of dung from cattle grazing on the pastures and groves of the outer zones of sanctuaries. Those which forbade dumping within the sanctuary probably aimed at teaching the visitors how to behave properly in sanctuaries, or those who sought asylum, or festival participants who brought their animals along with them.⁵² That some prohibitions were explicitly addressed to cult personnel is documented in the case of the Hekatompedon-inscriptions.

⁵¹Sokolowski 1962, no. 53 (Delos; third century B.C.), no. 24 (Epidauros; second century A.D.); 1969, no. 3 (Athens; early sixth century B.C.); no. 67.28-30 (Tegea; fourth century B.C.); no. 115 (Thasos; 395-71 B.C.); 116 4-5, 14-7 (Chios; fourth century B.C.)

⁵²*Stable in sanctuary*: Papadimitriou 1963, 120 (Brauron). *Festival and refuge*: Nemeth 1994b, 64.

If illegal waste disposal occurred, sanctuaries were cleaned of the excrement, as indicated by the epigraphic records from Delos (secondary or tertiary waste disposal; cf. app. E, s.v. sanctuaries). These cleansing activities and the final disposal of the sweepings resulting from them were not disposed of in a ceremonial setting, as it was the case in Rome on the 15th of June, at which date sweepings and faeces were carried out of the so-called *porta stercoraria* to a special location at the Capitol (Olck 1905). The disposal of faeces resulting from removal activities seem to have been viewed in ancient Greece rather as a practical necessity (cf. IV.2.4).

The second issue I wish to address in this section deals with the discharge of human bodily waste in sanctuaries. We have little evidence that might provide any insight into the kinds of toilets and disposal facilities that were provided for visitors to sanctuaries and the cult personnel. The most likely candidate for a lavatory is the *κοπρών* mentioned in an inscription from Crete (*IC IV 73A.9-10*), the date of which is unknown, as this structure is mentioned along with a kitchen. Another example which has been interpreted as a latrine is a small corridor in the northern part of the main building at the sanctuary of Artemis at Brauron (cat. 159). This is, however, only a hypothetical interpretation. That no further evidence has survived does not mean that no toilet facilities were provided, as indicated by the example of Athens (cf. III.3.2): although literary sources refer to public latrines in classical Athens, none has been excavated. Ethnographic studies suggest a range of possible provisions for the discharge of bodily waste, of which one or more may have been used in ancient Greek sanctuaries. Ancient Greeks may have used pits with simple wooden constructions on top of them that prevent the earth tumbling into them, or special fields may have been provided for each of the sexes outside of the sanctuaries, as occurs today in many parts of the world, then latrines, either informal or formal, were most likely situated at the boundaries of sanctuaries or outside of them.

A set of two, possibly three *amides* have been found in the third-century sanctuary of the Nymphs at Kafizin, Kypros (cat. 162, 163, 164). They appear to be dedications and thus do not provide any evidence for the provision of toilets within sanctuaries. Even so, they may have been used within the settlements or even in the sanctuary they were found in, prior to their being dedicated, but it must be stressed that this is a hypothetical theory. This interpretation is based on the similarity of shape with those found in the *agora* of Athens (cat. 185-7), and these are the only other urinals found or identified outside of Athens. The urinals found at Athens and those found in Kypros differ, however, in one important aspect. Whereas the former

have only one round opening in the upper wall of the vessel, the best preserved of the Kypriot examples has two openings in the upper side of the wall; the upper opening is circular whilst the lower one is roughly triangular (cat. 162). This made it far easier for women to use them, too. The dedication of *amides* is, as noted above, a unique example, but this may be because urinals did not always have a specific shape or form, but were often simply converted vessels (cf. II.3.6; III.3.3).

III.2.5 Summary

Votive offerings and sacrificial waste could be considered waste which had been dumped. In terms of the disposal of votive offerings, dedications considered unfashionable (Olympia) or those destroyed in the course of war (Isthmia, Athens) were considered disposable and could be removed and used for levelling operations in the course of the rearrangement of sanctuaries, including the erection of a new temple.⁵³ The remains of the god's share, I have suggested, were considered rubbish at Olympia (and at Samos cf. IV.2.1) and were removed when the northern part of the Altis was rearranged. The *ostraka* found in the fill of the Akropolis originally came from the *agora* and were probably moved, along with earth and other kinds of destruction debris, to fill in the large gap between the foundation of the Parthenon and the southern Akropolis wall. Thus, they do not provide evidence for inter-contextual disposal practices, but rather for inter-contextual de facto recycling practices.

III.3 Settlement

The categories of material culture discussed in the context of settlements are the same as those discussed in sanctuaries, except for votive offerings. They are substituted by dumping practices of waste and excess water, since they document the active role *polis* authorities played in the organisation of waste disposal.

III 3 1 Ostraka

Of the more than 11,000 *ostraka* found all over Athens, only twelve were found within the settlement area. Lang (1990, 8) has suggested that these few exceptions were pieces which had been lost before voting.

⁵³The Isthmian stadium, for example, built in the late fourth early third century B.C., when the earlier stadium was abandoned and the hollow at its Western end was covered with fill containing objects dating from the Early Iron Age to the Hellenistic period.

III 3 2 Sacrificial, slaughter and consumption waste

Faunal assemblages have been found in wells, pits and abandoned rooms and in bone workshops.⁵⁴ Long bones, in particular, were put aside for further reprocessing, whilst most of the other bones waste was thrown away.⁵⁵ This disposal pattern indicates the low social value of bones other than long bones and the skull. There are various views as to which animals were slaughtered within settlements. The views range from that of Jameson (1988, 87, 88) and Detienne (1989b, 3) who argued that meat consumed by Greeks in settlements came (nearly) exclusively from sacrifice, directly or indirectly (purchased meat from sacrifices) and slaughtered by staff from sanctuary either in a sanctuary or a butcher to that of Straten (1995, 159-60, 169) who noted that animals were also slaughtered within households. On the other hand, Isenberg (1975) and Berthiaume (1982, 62-70) have argued that meat from sacrifices and slaughter were not considered to be two distinct categories, since only 'sacrificial meat' was sold in butcher's shops. Osborne (1983, 395 n. 11) has stated that animals could also be killed without any religious overtones. Nonetheless, that there was an alternative to ritual killing/sacrifice and that some communities felt quite strong about the difference can be deduced from a number of Sacred laws (cf. Parker 1996, 52 n. 78).⁵⁶

Zooarchaeological research in ancient Greece is not yet in a position to contribute much to this debate. Peters & Driesch (1992) went beyond standard zooarchaeological research by analysing the differences between bone material found in the settlement and those found in the sanctuary. They concluded that animals killed in settlements were quite old. However, since she did not focus on cutting marks, it still remains unclear whether there existed different slaughter techniques and whether they can be linked to the contexts in which the animals were killed and cut up (i.e. sanctuary versus settlement) or the manner in which they were killed ritually in the sanctuary or within the settlement by cult personnel, as opposed to being a slaughter by a butcher). Luff's study (1994; 1996) of chopping marks from the faunal remains at Tell El Amarna showed that the analysis of chopping marks on bones can offer profound insights into the activities of butchers within settlements and the extent to which non-ritual killings took place (indicating the

⁵⁴Well: e.g. cat 92. Pit: e.g. cat 86. Abandoned room: cat 170. Workshop: Peters & Driesch 1992 (Didyma).

⁵⁵Displaying skulls: Theophr. Char. 21.7.

⁵⁶The situation seems to have been different in Homeric Greece: meat formed a substantial part of the standard diet of the elite in the *Iliad* and the *Odyssey* (Hom. *Il.* 8.249). Animals were regularly slaughtered on the arrival of a guest or because people were hungry. Although the reason for slaughtering animals was profane and the emphasis was put on public feasting, the consumption of meat was always preceded by a sacrifice to the gods. For example, in relation to the often repeated motif of the suitors devouring the wealth of Odysseus, that is to say his livestock, the verbs 'σφάζειν' (Hom. *Od.* 1.91-2) and 'ἑρεύειν' (Hom. *Od.* 2.55-6; 17.180, 533-8; 20.250, 391) usually translated as 'sacrificing' were used.

degree to which meat was part of the daily diet). She concluded that the temple personnel and ordinary butchers had distinct chopping techniques. The provision of equal portions for the distributions of sacrificial meat in sanctuaries most likely had an effect on chopping techniques, and this seems to me a fruitful avenue to pursue. When zooarchaeological which may reveal new insights into these issues is published, the study of waste management can perhaps be developed a stage further by conducting a comparative study of disposal patterns of bone material from animals killed in different contexts (settlements and sanctuaries) or in different ways (profane versus ritual) in residential quarters, where people were allowed to take their portion out of the sanctuary.

III.3.3 Organic waste

Disposal practices of two kinds of *kopros* will be discussed in this section. The first encompasses animal dung, while the second includes human faeces. As the framework in which bodily discharge and disposal of bodily waste took place is well enough documented through time to discuss it from a diachronic perspective, I shall attempt and discuss this data in accordance with an applied Eliasian framework. As Elias and his scholars have pointed out, the following four criteria are indicative for transformation processes in the sense of an Eliasian Civilising Process: (1) processes of specialisation, (2) processes of withdrawal from public, (3) increase in the degree of self-constraint and/or shame as well as the (4) increasing degree to which the state organises and controls bodily discharge.

Farmers who had livestock cleaned out the stables and pens and collect this littered waste in order to apply it to the fields as manure in the future (primary disposal). Provisional discard of *kopros* is already attested in the Homeric period (cf. IV.3.4). While provisional discard of dung occurred throughout antiquity, the collection facilities changed their form. Ault (1994b, 180; 1999, 554) suggested that the underground structures, which have been found in the courtyards of a number of Classical houses at Halieis and which could obtain about 3-11 m³ functioned as collection facilities for *k prones* (cat. 179-82). Most convincing is the interpretation of the stone-lined pit of House E, because a drain empties into this underground feature. This water would have kept the content moist and would have rotted weed seeds. These underground collection facilities had perhaps even an predecessors; in Miletos, dung was collected in a pit, either primary or by secondary de facto disposal. If the interpretation of this particular pit in Miletos is correct, it

would be the earliest Greek example of moist *kopros* being applied to the fields (cat. 174)

Variability - probably not so much across time, but rather across different types of households and settings - occurred with respect to the location of *koprones*. Whilst they were located in the courtyards of houses at Olynthos and Halieis (cat. Men. Dys. 584-5), they seem to have been located outside if farms or houses on other sites (e.g. *IG II² 2496.11-2*). Organic waste management differed probably also considerably between small scale and large scale farms. In small-scale farms, different kinds of animal dung as well as other kinds of domestic waste probably ended up at one spot, the dung heap. If the recommendations for unmixed fertiliser by Theophrastos', an 'élite-class farmer' (e.g. Garnesy 1992, 151). are not interpreted as 'ideal' recommendations, but as instructions for farmers, different kinds of waste were systematically selected and kept separate (cf. Alcock *et al* 1994, 150). More specifically, ash, sweepings, and tanner's waste, were to be kept separate. In addition, the different kinds of animal dung, including dung of horses, mules, swine and cattle, would ideally have to be stored separately, since unmixed animal dung was required for ideal results (e.g. Thphr. *CP* 3.9.5).

The disposal of human excrement is not discussed in the Homeric epics. When they were outside of the house, for instance, when they were travelling or working in the fields, they used most probably the environment. Which places they used when staying at home, is unknown. The only passage which have been interpreted so far in terms of privies are *Odyssey* 22.442 and 466. Joseph (cited in Rider 1964, 208) suggested that the pillar of the θύλος, around which Telemachos intended to hang the disloyal maidens, was part of a privy. This interpretation is, however, not more than a suggestion.

In the archaic period, Hesiod's collection of rules near the end of *Works and Days* is the most informative literary source for the analysis of male excretion habits. Farmers used the environment for relieving themselves while working outside of the *oikos*. Following Hesiod (*Op.* 756-63), the source of rivers leading to the sea and springs should, however, be spared from urine and faeces, because people who urinate (οὐρεῖν) and defecate (ἐναποψύχειν) into these kinds of water might acquire a bad reputation (δεινή φήμη⁵⁷). Hesiod did not determine the kind of offence trespassers would commit. Illi (1987, 165) suggested that the prohibitions were hygienically motivated. It is, however, more plausible to interpret them in

⁵⁷ Φήμη and oral publicity: Haliwell 1993, 324 with n. 11.

terms of religious concerns due to other rules aiming at protecting sacred elements from defilements with bodily wastes and the understanding of rivers as elements sacred to gods.⁵⁸ In this case, the offence would have been the pollution of a sacred space. This rule, I suggested at II.3.1, was observed in archaic Boeotian peasant life. This does, however, not mean that less perfect members of the Boeotian society disregarding the Hesiodic values of work, piety and justice, did always follow this ideal rule.

During the night, the pious men (θεῖος ἀνὴρ) should either urinate seated or close to a wall of his courtyard (αὐλή; Hes. *Op.* 729-31). Urination outside of the inner sphere of living appears to have been the norm.⁵⁹ This implies that the typical small-scale Boeotian farm had no cesspool within the walls. This was also true for the typical *oikos* of late seventh century Amorgos, if the *kopros* which was to be thrown out of the *oikos* by a good woman in a poem by Semonides (*fr.* 7.60 (West)) meant human bodily waste. If there were no facilities within the *oikos*, it seems likely that the area outside of the well-fenced *oikos* of Hesiod was used for urination and defecation during the day or at dawn.

Alcock *et al* (1994, 150) interpreted Hesiod's instruction in terms of saving the 'valuable urine' with a view to manuring it at a later point in time, since the 'straw and other litter' spread in the courtyard would soak the urine up. This interpretation assumed that the nature of the instructions were primarily practical and that human urine was regarded a fertilising agent. There are, however, difficulties with this view. This passage is part of a longer passage on decent ways of urination for men (Hes. *Op.* 726-31). Here, discharge while sitting down without undressing themselves as much as possible was considered model behaviour. Standing was only allowed when men could face a wall. The precautions for urination at night aimed at keeping the insult to the goddesses as minimal as possible, it seems, because the nights were blessed by the gods (Hes. *Op.* 729). Considering the context of the passage under discussion, I think it has to be interpreted rather in religious terms than in practical. In terms of using human urine mixed with other kinds of waste from the courtyard as manure, it is noteworthy that this would be the only indirect hint to manuring practices in the works of Hesiod. As I interpret Hesiod's advice to go to the wall as a religiously motivated advice, I doubt that it can be interpreted as a hint to manuring practices.

⁵⁸Protection of the sacred: cf. II.3.1. *Sacred rivers*: Hes. *Op.* 736-8.

⁵⁹Cf. Hes. *Op.* 728-9, which I interpret as a prohibition for urination while walking on and off streets.

By c. 600 B.C., the emerge of the first specialised de facto disposal facility for bodily waste can be identified in Athens (cat. 165-6). This terracotta vessel is a combination of a stool preventing the baby from crawling away and a sella cacatoria, as is indicated by the hole in the middle of the vessel (cat. 184). At around the same time, at Sybaris, male symposiasts are said to have brought along with them their own urinal, while this development of specialised disposal facilities is not documented before the classical period elsewhere. The introduction of urinals to the Athenians is linked to Alkibiades, who is said to have brought it from Sybaris (Eup. fr. 351 (Koch; Ath. 17D)).

Processes leading to the incorporation of di charge processes into the *oikos* can be identified much later. Rooms set aside for excretion have been found in Olynthos (cat. 167). They were, however, not yet part of the standard equipment of houses, as the houses of Halieis show (cf. Ault 1994a). This difference was not only typical between different *poleis*, but also between different households within one *polis*. For example, in fourth century Athens, outdoor-excretion and indoor-excretion coexisted.⁶⁰

Whether or not these changes went hand in hand with changes in the degree of self-constraint is difficult to say. More specifically, it depend on the interpretation of a passage by Aristophanes. Here, Blepyros goes out of his house to defecate. While relieving himself, he had a conversation with his neighbour. Some scholars interpreted this scene as evidence for the fact that shame was non-existing (e.g. Owens 1983), while others considered it a hidden aspect of social life (Henderson 1975, 187 no. 396).

III.4 Agorai

As in III.4.3, the substances and items discussed in this context include *ostraka*, sacrificial and consumption waste as well as organic waste. In this section, I will not include a wide range of *agorai*, but rather focus n the Athenian *agora*, at which all three waste types occurred and which is well pub shed.

III.4.1 Ostraka

In the Athenian *agora*, more *ostraka* have been found than in the context of sanctuaries and settlements. Their distribution pattern does not vary considerably

⁶⁰Outdoor: Ar. Av. 790-5. Indoor: Crouch 1993, 27.

from that discussed in other contexts so far. They were found all over the *agora* (pl. 8) in smaller and larger deposits, which partly fulfilled practical purposes (cat. 55-82).

III.4.2 Sacrificial, slaughter and consumption waste

In this analysis of faunal remains of the *agora*, I shall discuss by way of example two types of faunal assemblages, which can perhaps be associated with the disposal of remains of the god's portion and consumption waste from public dining: those found in an altar and to those found in wells. The first deposit of faunal remains under discussion was part of the fill of the late archaic altar of Artemis Ourania (cat. 90). It contained a large quantity of burnt and unburned animal bones of various species, burnt shells and one olive pit. The animal bones may have originally derived from one source, sacrificial beasts. The kind of burnt bones found indicate that they are the remains of the god's portion and the unburned faunal remains may be the waste of the human's share. The fact that burnt and unburned bones were found mixed together seems to indicate that they had been disposed of near to each other on the ground, if not mixed up either in a pit or on the ground, before they were finally deposited. This mixing up of the remains of the human's and the god's portion implies that no special significance was attributed to the sacrificial remains; they seem to have been treated like ordinary waste and may therefore be termed rubbish. I think it is possible that the mixed heap was removed in the course of the construction work for the new altar and deliberately used as construction fill. Since the intentions for the creation of layers are complex, as I have shown for the dumped and (de facto) recycled votive offerings found in construction fill (III.2.1), it cannot be excluded that the heap of bones of the previous altar was incorporated into the succeeding altar to stress continuity and tradition. In any case, the treatment of sacrificial remains of the altar of Artemis Ourania of the Younger *agora* is opposed to those found in an archaic *bothros* built of reused and reutilised architectural blocks (cat. 188).

The second set of faunal assemblages which can be interpreted as dumped fills because they contained faunal remains and fragmentary household equipment were found in wells (cat. 85, 92-4). Of special interest to my analysis is a group of wells located in the north-western area of the *agora*, which contained faunal remains (Rotroff & Oakley 1992, 48; Shear 1993, 386). The well fills located in the north-western *agora*, which contained broken pottery and unburned bones, have been interpreted as dining waste. More specifically, the bones were regarded as food

debris from an important *syssition* or public dining room at the north-western corner of the *agora*. The pottery regarded as public dining pottery was stored in a building, which was destroyed by the earthquake of 426 B.C. (Rotroff & Oakley 1992, 7, 37). Consequently, it is likely that the animal bones were removed in the course of the clean-up and rearranging of the *agora* after 426 B.C.

III 4 3 Organic waste

Although *agorai* were - as sanctuaries - highly frequented places (e.g. ostracism, political meetings, processions, taverns etc.), at which animal market could take place, there has survived only one ancient disposal regulation for organic waste (*IG* II² 380, cf. app. G.1; app. E). However, this does not mean that there were no measures undertaken to prevent the defilement of these public places and the buildings and areas within them. Urinals found in tavern debris indicate that urinals were used in the classical period in taverns (cat. 186-7). These examples have a hood around both sides and the top of the whole of ἀμίδες; this may not only have been a splatter protection, as Ili (1987, 168) suggested, but also a sight and thus a shame protection. Literary sources give evidence that at meetings of the *boule* and at public meals in the Prytaneion portable urinals (ἀμίδες) were available.⁶¹ As ἀμίδες were called for, urination took place in public - just as it is documented for the symposia (II 3.6). Although urinals are only attested for the *boule*, it is reasonable to argue that they were also provided for other political meetings such as *ostrakophoria*.

At the Athenian *agora*, a number of ἀμίδες were found in wells (cat. 185-7).⁶² They have a distinctive form and a typical decoration: they have a hole on the upper part of the body and a handle on top of the vessel; their body is decorated with horizontal stripes. Besides this 'specialised urinal', ancient Greeks used a number of vessel types as urinals, including high-handed round-mouthed jugs, perhaps originally used as water jugs, as well as footbaths, and clay basins.⁶³ That a large number of vessel-shapes and types served as *amides* not only in symposia, as I have shown in II.3.6, can be deduced from an archaeological find of the *agora* of Athens: a vessel bearing the inscription ἀμίς scratched on the shoulder after firing (cat. 185) As not all provisional urinals were marked, it is difficult to quantify the number of urinals which have been used as such in antiquity and to detect changes

⁶¹*Boule*: Ar. Th. 633 Cf. Henderson 1975, 191 nos 4 8, 410. *Prytaneion*: Ath. 150A.

⁶²Sparkes (1975, 128) and Knauer (1986, 95 n 13) stated that half a dozen of them were found, but I could only identify the three I listed in my catalogue. *Identification of vessels as ἀμίδες*: Talcott 1935, 495, 512 nos. 72-3, fig. 16.

⁶³*Water jugs*: Knauer 1986, 95 n. 13. *Footbath*: Hdt. 2 172. *Σκάφιον*: Ar. Th. 63.

over time (cf. III.3.4). The final disposal of urine is not known. Urinals may have been emptied into public cesspools, if there were any, and the area immediately outside of *agora* appear the most likely locations for secondary bodily waste disposal.

Owing to the scarcity of literary, epigraphic and archaeological evidence, little is known about the provision of toilets in *agorai* by the *polis* authorities. Dittenberger and, following him, Thompson have interpreted the astynomic law from Piraios as a restriction for the erection of cesspools.⁶⁴ This would mean that no public facilities were tolerated by the city authorities within the boundary of the *agora* of Piraios. His interpretation seems, however, quite unlikely for the *agora*, since it was synonymous with the prohibition to erect latrines and would inevitably lead to the defilement of the public places, which cannot have been in the interest of the body, who issued this legislation. I consider it more plausible that, by contrary, public latrines were not only common feature in settlements by the classical period, but also in other public places, including *agorai* (cf. III.2.4). Since human excrement were not tolerated within the early Hellenistic *agora* of Piraios (*IG* II² 380), it is likely that they were located at the boundaries of the *agora*, places well documented for the post-classical period (Camp 1998, 43, 182 on fig. 153). As no evidence has been found yet for pre-Hellenistic public latrines, they may have not been built of durable material and linked to a drainage system (cf. III.2.4). The extent to which these latrines were used would, among other factors, depend on their maintenance by the *polis* authorities. The reference by Plato (*Lg.* 764B) to keeping springs clean of *kopros*, may indicate, that some visitors of the Athenian *agora* misused springs as rubbish dumps for organic waste.

III.4.4 Summary

As in sanctuaries, *ostraka* have been removed together with earth. In contrast to sanctuaries, however, whole piles of *ostraka* seem to have been moved in order to be filled in (cat. 54-82). Another parallel with the sanctuaries can be observed in the conceptualisation of the remains of the god's portion as waste. The scale at which these disposal practices occurred is not known and would require a larger sample. Yet, it is important that the output of a ritual action was not necessarily been conceived of as 'special waste' under all circumstances. Another point in common is the lack of knowledge of the involvement of *polis* authorities in the provision of toilets. As far as toilet paraphernalia are concerned, the urinal for women found in

⁶⁴*SIG*³ 313.34-40 (= *IG* II² 380, cf. app. G.1); Thompson 1959, 102.

the sanctuary of the Nymphs at Karafin, Kypros, was complemented by one for men, which is called in the literature ἄμις. A find of a water-jug with the inscription 'amis' documented the practice of multiple use of vessels, which was otherwise only documented in literature and vase-paintings (II.3.6).

III.5 Cemeteries

The categories of material culture that can usefully be discussed within my framework of waste disposal are the following: practices for the disposal of the dead, grave goods, coffins and burial vessels, burial markers, *ostraka*, sacrificial, slaughter and food waste, organic waste, water, graves. My primary aim is to show how my theoretical framework can be applied to these categories of material culture. In terms of the disposal of the dead, a thorough analysis of burial practices - taking into consideration spatial disposal patterns and disposal methods as diverse as inhumation, cremation, exposure to carrion animals or the elements, dumping into pits, fissures and the sea - can shed some light on social organisation and differentiation. As a more detailed discussion on the associations of marginal people with 'rubbish' is given in appendix F, I just summarise its results in III.5.1. As far as the remaining categories of material culture are concerned, their study (aside from coffins, burial vessels and graves) will enable me to discuss these practices against the background of the disposal practices of sacrificial and food remains in sanctuaries, settlements, and *agora*. Due to my primary research interest the data collected for III.5.2-9 is not to be considered statistically relevant, but makes it possible nonetheless to make some general observations on the disposal practices and processes at Greek cemeteries.

III.5.1 The dead

To be finally disposed of without receiving any honour (ἐκβάλλεσθαι; ἄταφον ῥίπτεσθαι) was considered a shameful and an animal-like fate by the majority of ancient Greeks. This could occur as both a primary or secondary disposal practice, if the bones were exhumed and discarded without the intention of reburying them. Such disposal practices were restricted to the remains of children and perhaps also of marginal social groups, such as slaves and women in the classical period at least, as well as public enemies and victims of a tyrant's terror or oligarchic brutality. The reason for the denial of burial to different social groups was different in each case. Whereas the careless disposal of children, for example, was due to the conception of them as marginal beings and, socially speaking, their insignificant and invisible existence in their lifetime, the denial of burial for opponents, criminals, the socially

unpopular and enemies was a post-mortem insult and punishment, akin to the mutilation of corpses or being thrown out naked. Burial or disposal beyond the boundaries of the city (ἐκβάλλειν) or into the sea (καταποντίζειν) made people invisible and placed them outside of the community. Whenever individuals or groups were punished by being cast into the sea or devoured by animals, I argue, it seems reasonable to assume that these modes of disposal were aimed at extinguishing the social memory of wrongdoers.

Minimal burial and denial of burial were socially acceptable for people with a liminal status and convicted criminals. In nearly all other cases, it was considered by the majority of Greek society an unjust rejection of the individual's right of burial and a horrendous, socially unacceptable crime, typical for 'non-humans' such as Sirens, tyrants and oligarchs. The Cynics, however, distinguished themselves from mainstream attitudes in that they did not regard disposal of a body in an 'animal-like' way, nor the concept of the dead body as a source of food for animals, to be shameful and threatening. Diogenes, in particular, stressed the positive aspects of such as fate, namely that it provided food for other creatures. As he was said to have made provisions that his corpse would be used as a source of food for animals, Diogenes' behaviour can thus be described within my framework as aiming at a *de facto* recycling process. His desire that his corpse be used as animal feed seems to have been the most extreme example of the reuse of items and substances.

III.5.2 Grave goods

Although some pre-Hellenistic graves contained broken and misfired vessels, the processes leading to their disposal may not be described in all instances as inter-contextual disposal. Whenever broken grave goods were ritually killed to withdraw them from human use and the personal belongings of the dead were broken before they entered the grave, they cannot be considered as e. Misfired grave goods were not exclusively found in cemeteries.⁶⁵ Therefore, it is reasonable to argue that they were simply cheaper grave goods.

Disposal of grave goods occurred when they were thrown into dumps or wells. It also occurred when remnants of earlier burials were used as background material in fills around and above the more recent burials. In this case, grave goods remained *in situ* after the casual or deliberate destruction of a grave on or near the site, and were redeposited when a new burial was made. Whilst it is easy to define the disposal

⁶⁵Parlama & Stampolidis 2000, nos. 106, 110-1, 210, 221, 315-8, 396, 405-6.

practices of grave goods at burial places, it is equally difficult to identify them in the archaeological record. The main difficulty is in the identification of the discarded objects as grave goods, when they have been excavated in contexts outside cemeteries. It is, for example, not clear as to whether fragments of *pyxides*, *oinochoai* and *kantharoi*, which were found in the dumped fills of a number of seventh-century wells in the Athenian *agora*, were originally grave goods or whether they had been used for other purposes (cat. 86-9).⁶⁶ If these vessels were indeed grave goods, they probably came from the burial place located at the upper east-west road which traversed the northern slopes of the Areopagos (Brann 1962, 111). It is also unclear as to whether at least some of the black figure *lekythoi* that had been found in large quantities in *agora* fills associated with the Persian destruction had not originally functioned as grave goods (Shear 1993, 393). It has been suggested that most of them probably came from the store of a local potter's shop, but it is also possible that a number of the little oil flasks may have come from burials destroyed by the Persians in 480-479 B.C.⁶⁷ If the ceramic finds from the Athenian *agora* had been grave goods, their find spot and the composition of the find assemblage indicate that grave goods were regarded as readily available fill - just like any other kind of undesirable waste. Less disputed are the finds from the cemetery of Pantanello at Metaponto and those from necropolis S near Palaiopolis, Samothrace, as the fragments of a variety of vessels found around and above a large number of the burials and in ceramic dumps are similar to those used in intact burials.⁶⁸ If the interpretation of ceramic deposits as rubbish dumps is correct, it would document the careless treatment of grave goods which had reappeared for various reasons. The contemporaneous use of a number of ceramic dumps suggests that they were filled after a period of major activity in the necropolis, when it had already been in existence for 300 years.

III.5.3 Coffins and burial vessels

The discarding of the fragments of coffins and of both intact and broken burial vessels took place whenever the 'containers' into which the physical remains of the dead had been placed, were removed from their burial place and thrown away. Burial vessels were dug up both intentionally and accidentally. When intentionally, the purpose of digging up the coffins and burial vessels was to spread the physical remains of the dead over the ground, and the disposal of the remains was part of a punitive action directed against the dead and their families. Punitive disposal practices

⁶⁶Brann 1961, 306; 1962, 108, 127; Kistler 1998, 171-6.

⁶⁷Thompson 1955, 62-6; Sparkes & Talcott 1970, 397.

⁶⁸For grave goods found in the fill at Morgantina, cf. Carter 1998c 115. For Samothrace, see Dusenbery 1998a, 8. Carter 1998c, 115 does not specify the number and location of the dumps.

are documented mainly in the literary sources (III.5.1). When accidentally, the burial vessels had been accidentally unearthed and not subsequently carefully reburied, but instead disposed of. Fragments of burial vessels which have been found in the fill around and above burials and dumps give evidence of this disposal practice. Of particular interest is the extensively used necropolis S near Palaiopolis, Samothrake. Here, some accidentally unearthed ash urns of adult burials were carefully reburied, whilst others, which had also been accidentally unearthed, were treated without any care or respect (Dusenbery 1998a, 8). This suggests that the attitudes towards the dead and their burial vessels depended on the individual, who, by chance, hit upon an earlier burial, whilst digging a grave for his own dead. Disposal practices of burial vessels occurred also when individual graves were used more than once for two or more separate burials at the necropolis of Pantanello, Metaponto, and that of the Athenian *agora*, if the considerable number of fragments of *amphorai*, *pithoi* and *hydriai*, which were found in ceramic deposits on and near-by the sites, had indeed functioned as burial vessels for small children.⁶⁹ It is tempting to explain the disposal of child burial vessels in term of the low social status of children, which I discussed at III 5.1. However, this hypothesis would need to be tested against the treatment of burial vessels of adults which had also been accidentally unearthed in these cemeteries.

III 5.4 Ceramic burial markers

The disposal practices for ceramic burial markers are particularly well documented and published for the cemetery of Pantanello, Metaponto. Here, the ditch separating the burial places from the road was evidently considered not only a convenient area for the disposal of broken pottery, but also for broken and nearly complete ceramic burial markers and for remnants of earlier burials. Ceramic burial markers seem also to have been found in the ceramic deposits found scattered over the cemetery mentioned above, which Carter (1998c, 125) interpreted as rubbish dumps. Thus, it is reasonable to assume that the waste found in the ditch derived from the same cleaning activities that led to the filling of the pits scattered over the cemetery. That some gravemarkers of the eighth-century burials of the northern slope of the Areopagos were also considered 'waste' can be concluded from their find spot and the composition of the assemblages. They were found in wells in the Athenian *agora* along with waste from different sources including public dining and household waste and probably votive offerings from sanctuaries (cat. 86-9).⁷⁰ In contrast to the previous examples, however, the burial markers in the Athenian *agora* were not only

⁶⁹Ceramic deposits at Metapont: III.5.4-5. *Pr. v. isional burial vessels*: IV.5.3.

⁷⁰On the interpretation of the dumped fill of these wells cf. Brann 1961, 305, 306.

removed, but probably also considered readily available waste, either to fill up deep structures or just the top layer of the shaft and, thus, guarantee the safety of visitors. The understanding of old burial markers as 'rubbish' in two different contexts, times and geographical regions suggests that this evaluation may have been common. This hypothesis would need to be verified by means of a more systematic study, taking into account the circumstances in which burial markers became part of the waste stream.

III.5.5 Ostraka

Most of the remnants of the ballots were found in the Kerameikos, outside of the city walls and, thus, far from the place they had been recycled, inscribed and counted. The great majority of the c. 9.000 Kerameikos *ostraka* came from three large deposits, with 43 *ostraka*, 155 very fragmentary *ostraka* and around 9 000 complete *ostraka* (cat. 99-101) respectively.⁷¹ These deposits were not rubbish dumps in the strict sense, as they seem to have fulfilled specific purposes, including stabilising an area, channelling the Eridanos, and filling a hole. The deposition history between the two recycling practices is not clear. More specifically, it is unclear whether the *ostraka* were transported from a dump situated in the *agora* to be finally discarded or whether they had been removed from the *agora*, and dumped or stored outside of the city-wall before their final deposition (Peek 1941, 51). Their inter-contextual interim dump/storage may have been either a routine activity after each *ostrakophoria* or may have resulted from the cleaning of the *agora* or parts of it. That decades may have passed between the counting out of ballots and their final deposition is implied by cat. 100, if it is accepted that the upper layer of cat. 100 indeed contained ballots cast after the mid-fifth century B.C. and that both layers were created at the same time.

III.5.6 Sacrificial, slaughter and consumption waste

Animal bones found at burial sites may have derived from three different activities: funerary meals, (chthonic) sacrifices for the dead, and offerings or sacrifices for the dead as part of a hero or a tomb cult.⁷² The latter two activities seem to have been carried out throughout the period under observation. The funerary meal (τάφον δάϊνυ) may have taken place close to the cremation or burial place only in the Homeric and the early archaic periods, because the *περίδειπνα*, which appear to

⁷¹Lang 1990, 8 (list of all deposits); Willemsen & Brenne 1991, 156.

⁷²Provision of nourishment outside of burial places: Hom. *Od.* 10.513-40; 11.21-5, II.1.8. *Cult activities related to offerings*: Parker 1997, 33 with n. 18. *Cult activity related to sacrificial meals*: Parker 1997, 33-4 with n. 19.

have become common by the classical period, seem to have been held within the *oikos*.⁷³

An analysis of the disposal patterns of the animal bones from funerary meals, destructive sacrifice and hero or tomb cults across time is difficult for a number of reasons. Firstly, the distribution patterns of animal bones have not received much attention by excavators and scholars dealing with cemeteries and burial habits. Noteworthy exceptions are Kurtz and Boardman (1971) and Antonaccio (1995), in which she discusses animal bones which may have originated from cult activities. Secondly, it is not easy to associate the faunal remains with one of the three activities outlined above. Thus, the faunal remains from the West Gate cemetery at Eretria have been interpreted as the remains of a ritual meal, a burial ceremony and a sacrifice (Antonaccio 1995). Thirdly, the deposits containing animal bones have not been published in such a way as to allow us to distinguish between carefully and carelessly deposited faunal remains. There is a tendency to interpret them as carefully buried ritual deposits (Antonaccio 1995), but it is equally possible that fills of the pits were dumped, and not buried. As a result, it is only possible to reconstruct distribution patterns of animal bones across time.

Changes in the distribution patterns of the remains of destructive sacrifices occur from the Homeric to the late geometric/early archaic period. In the Homeric epics, the corpse of Patroklos, which has been covered in fat so that it would burn better, was burnt along with the bodies of slaughtered animals and those of the twelve Trojans, whose throats had been cut before the Patroklos' pyre.⁷⁴ After the cremation, special attention was given to Patroklos' bones, which were carefully singled out from the remains of the other corpses (λέγωμεν εὐδιαγιγνώσκοντες), so that Patroklos' bones would not become mixed up with those of the animals and the Trojans.⁷⁵ It is noted in the text that this separation was not too difficult since Patroklos' bones were in the centre and those of the animals and other Trojans at the periphery. After the separation of the 'valuable' from the 'invaluable', Patroklos' bones were placed in precious urns to find their final resting place in a tomb. The remains of the offerings and sacrifices appear to have been left at the spot as primary *de facto* waste. This careless treatment suggests that the remains of the conspicuous consumption of the

⁷³*Homer*: Hom. *Il.* 23.24-34. Less clear is the location of the funeral feast Orestes held for the Argives when he had slain Aegisthos (Hom. *Od.* 3.308-1). *Geometric Asine*: Hagg 1983, *contra* Antonaccio 1995. *Solon*: D. 43.62; *Plu. Solon* 21.5. *Classical*: e.g. D. 18.288; *Aen.Tact.* 10.5. Cf. *Ath.* 290C; *Mau* 1897, 348.

⁷⁴*Trojans*: Hom. *Il.* 23.22-4; 175-6. *Animal*: Hom. *Il.* 23.166-9. Cf. Hom. *Od.* 24.65-6 (Achilles).

⁷⁵Hom. *Il.* 23.238-48. Cf. Hom. *Od.* 24.70-6 (Achilles).

destructive sacrifice no longer had significance and value for either the dead or the living.

The offerings within sacrificial trenches can be compared to Homeric practice, if we agree with Kistler (1998, esp. 177) that these were destructive sacrifices drawing on the 'marzeah' (an orientalist version of the symposium, which had become fashionable among the Greek elite by the end of the eighth century). These trenches are characteristic for Attica between 720-650 B.C. and contained banquet vessels, bird's bones, shells, egg-shells and perhaps also the remains of other animals. As in the Homeric period, the food was burnt close to or even at the same spot as the corpse. In contrast to the Homeric period, however, the association of the dead with the burnt sacrificial animal was maintained, the physical remains of the dead were buried near to or even over the sacrificial trenches.

Faunal remains associated either with funerary meals or hero/tomb-cults were not piled up on altars, but either collected in pits, as at Asine, or piled into nearby heaps.⁷⁶ In this respect, the treatment of these remains differs from those resulting from trench-rites, but resembles that of the sacrifices performed on stone altars in sanctuaries.

Practices which may perhaps be interpreted as dumping occurred in the vicinity of the Academy in Athens, where numerous traces of sacrificial meals consumed by a cult association have been found in, under and around a building situated close to a contemporary graveyard and next to the remains of a house, which was, perhaps, the house or the tomb of the hero Akademos (Antonaccio 1995; Parker 1997, 33-4 with n. 19). This assumption is based on the fact that the sacrificial remains were spread all over, whereas the votive offerings were found neatly gathered in nearby pits. Another deposition process which may be interpreted as disposal appears to have occurred in Vrouna and Marathon (Kistler 1998, 41) in the late geometric/early archaic period, where trench-rites were performed more than once as part of the post-funerary rites and the remains were occasionally cleaned out. Since underground sacrificial pits have not been found, the remains of the sacrifice which had been cleaned out were probably simply heaped up close to the trench

III 5.7 Organic waste

To my knowledge, there was no pre-Hellenistic disposal legislation which regulated the dumping of κόπρος, as there was in Rome (cf. II.4.2) Neither are there any

⁷⁶Asine: Hagg 1983. *Athenian Academy*: Parker 1997, 33-4.

literary, epigraphic, or archaeological references to either pre-Hellenistic buildings, rooms or temporary structures which may be interpreted as lavatories at burial places, nor any references to such structures. The discharge of human waste is as equally poorly documented for other public spaces in pre-Hellenistic *poleis*. It may be speculated that some burial places had simple pits or a restricted area for this purpose; if so, it was probably located at the boundaries. Visitors to the Kerameikos of Athens may also have used the Eridanos for a toilet, into which the liquid waste from the great drain was emptied (Ar. *Eq.* 1397-9, cf. III.3.3 and III.4.3). It is noteworthy that the dead were buried equipped with all kinds of cleansing objects, which enabled them to maintain their high degree of personal cleanliness in the after-life as well. As far as I am aware, however, they were not supplied with chamber-pots or other portable receptacles for bodily wastes.⁷⁷ That chamber pots were not considered necessary in the after-life may point either to the fact that the dead would not have this kind of human needs or that the nether world of the after-life would provide such facilities itself.

III.5.8 Water

Archaeological evidence for waste and excess water disposal facilities in cemeteries is rare. I will discuss two facilities which were associated with water disposal. The first was suggested by Scheibler in her discussion of the purpose of the pierced bottoms of Attic geometric funerary *kraters*. Scheibler (1995, 29-30) suggested that the holes served two needs: to supply the dead with liquid and to prevent the filling up of these vessels with rain water. Scheibler did not specify the kind of dangers that she associated with burial vessels which would have become filled with rain water, but we can suggest both a symbolic and a practical reason as to why this should be prevented. In symbolic terms, rain water had to be drained because it was considered profane; in practical terms, the filling up of the monumental vessel with rain water could cause damage to a grave. Even so, it is doubtful that vessels with small openings could become filled with water to the extent that this could endanger the grave. As for the primary meaning of pierced funerary vessels, I interpret them in a manner akin to that for destructive sacrifices for the dead and the distorted blades of weapons found in graves as examples of intentional breakage and ritual destruction.⁷⁸ As such, I consider the disposal of excess water to be a practical side-effect, to the extent that this was of concern at all.

⁷⁷*Lavatories in tombs of archaic Egypt*: Dixon 1972a, 647. *Cleansing objects in mainland burials and Magna Grecian colonial necropoleis*: Carter 1998d, 199; Carter & Toxey 1998. *Significance of personal cleanliness for the dead*: cf. app. D; E s.v. cemetery.

⁷⁸Kurtz & Boardman 1971, 57-8; Kisler 1998, 59; Soles 1999 ('ritual killing'). *Contra*: e.g. Bommelaer 1972, 245 n. 37.

The second feature which has been associated with the disposal of excess water is a drain that appear to have run through the cemetery south of the Akropolis of Athens, in Erechtheion Street. More specifically, two drains using the same trench seem to have run through the rectangular, fourth century *peribolos*, which enclosed fourteen twelfth to tenth century B.C. graves (cat. 192). Antonaccio (1995, 210-1) argued convincingly that these were water pipes rather than sacrificial libation drains. From the publication record, it is, however, not clear whether these drains carried fresh water or excess and waste water. It is reasonable to argue that the builders of the drains were either not aware of the existence of the cemetery or did not show much respect for the graves, as the drains destroyed one of the graves. Thus, the building of the drains may be considered an example of the unintentional recycling of cemeteries for technical purposes.⁷⁹

III.5.9 Graves

It is difficult to determine when architectural structures entered the waste stream. It is much easier to determine the moment when they were no longer part of the waste stream, because they were recycled in some form or other (cf. IV.5.4).

III.5.10 Summary

Having used archaeological and literary data in an exemplificatory way to a large extent, my following three statements made on waste disposal in Greek cemeteries have only limited validity. Firstly, the choice between primary or secondary disposal and the careful deposition of people and objects seems to have been dependent on the valuation of the people and objects (III.5.1), and from individuals in the case of the Samothrakian necropolis. Secondly, discarding occurred on a regular basis at cemeteries with condemned people and those held in a low esteem, perhaps also including children. Secondary disposal of burial vessels, ceramic markers and grave goods occurred in a number of cemeteries, either after regular clean-ups, as at Metaponto, or when new graves were dug, and perhaps after the Persian destruction. Until a more representative study has been carried out, it is difficult to identify clear chronological or regional patterns. Thirdly, the disposal of people and objects with symbolic overtones, seems to have been rare at pre-Hellenistic cemeteries. I could only identify them in relation to punitive actions directed against the dead and his or her family.

⁷⁹*Recycling of burial places as agorai*: cf. IV.4.3. *Recycling of cemeteries as habitation sites* e.g. Athenian cemeteries southwest of the Tholos, Athenian agora and at Kavalotti St. (Antonaccio 1995, 208, 211). *Recycling of cemeteries and graves for ancestral claims*: cf. IV.4.3, 5.4.

III.6 Summary and conclusions

Terms, concepts and attitudes

The analysis of Greek terms for practices, which may be subsumed under the term (de facto) disposal practices, revealed that the cultural phenomenon of recycling had many faces in ancient Greece (III.1). Ancient Greeks distinguished between the different ways solid and liquid waste could be disposed of. They were poured out or discharged (χοῦν), let fallen or dropped (προίησθαι) or cast away (βάλλειν, ρίπτειν). The most frequently employed phrase for waste disposal consisted of *verba composita* with βάλλειν. They occurred in connection with a wide range of things, including objects, substances and corpses. The direction and targets of disposal practices seem to have been more important than the motivation behind the action. Thus, the term 'εἰςβάλλειν' could denote an offering being dedicated to the sea or a passenger thrown overboard. The only verb which had only a single meaning was καταποντόειν or - 'to throw into the sea', which was synonymous with 'to get permanently rid of somebody or something'.

The motif of 'riddance' resulting in permanent discard was not the only driving force for (de facto) disposal practices. Other motivations include the wish to set an end to something (laying waste), using things in the future (provisional discard) or make a statement of the esteem in which people, objects or places were held, for instance, by pouring out chamber-pots over people, discharging excrement at monuments or disposing people of like rubbish (III.5.1).

Discarding can be viewed differently, depending on the context in which this practice takes place. Disposal practices carried a positive connotation, when conceptualised as intelligent behaviour or entertainment, and a negative one, when perceived as a criminal act, an insult or as an humiliation. Greek legend, law and practice also showed that under certain circumstances, the same type of disposal practice could be valued differently. For example, while the disposal of corpses without burial rites into ravines, the sea or beyond the borders of civilisation and the digging up and casting out of bones were considered horrendous crimes if committed against decent people, they were accepted as traditional punishments imposed on tyrants, traitors and murderers (III.5.1). Similarly, careless disposal of the physical remains of children in the geometric period seem to have been socially accepted because of the low social status of children, while it seems to have not been accepted for adult burials. That even the valuation of one and the same de facto discarding practice may vary, I have shown with respect to the concept of 'laying waste'. While destruction waste appears to have been interpreted in terms of

power and superiority by the conqueror and the conquered, the Athenians seem to have interpreted the so-called Persian debris on the Akropolis (cat. 64, 201, 203-5) in a very specific way, as I suggested: a token of barbarism and superiority of the *polis*, who in the end won the battle.

Spatial disposal patterns

The intentions leading to the disposal of objects and people determined the location at which they were disposed of. Provisionally discarded waste was deposited at locations, which were easily accessible. The temporary waste matter was not mixed with other waste matter, if the pure substance was intended for future use (X. *Oec.* 8.8-9). In the case of manure, all kinds of waste matter ended up on the dung-hill and eventually were spread over the fields as fertiliser (II.1.3). Removed 'matter out of place' have been dumped at a number of sites, including immediately outside of houses, workshops or city-walls as well as into streets, underground structures, abandoned rooms of a building or areas, as well as water bodies.⁸⁰ Permanently disposed waste can be found in inaccessible places, including wells, fissures and the sea (III.1.2). In contrast to other cultures (e.g. Dixon 1972b, 32), little evidence survived for the practice of burning rubbish.⁸¹

Identification of waste and disposal practices in the archaeological record

In most cases, de facto waste and objects in use can be easily distinguished from each other. However, in the case of deliberately broken *alabastra* found in graves and pierced vessels found both inside and outside of graves, the interpretation is ambiguous and depends of the point of view. For archaeologists this ritual waste is de facto waste, as it was not formally discarded, for the living the broken vessels are of no use and can also be called de facto waste; for the dead the objects served in their original function as oil-flasks or dishes (e.g. Hägg & Fossey 1980; Rafn 1984). Waste may be, therefore, said with Thompson (1970, 917; 1979, 7, 97) 'to be in the eye of the beholder' or to be a layer of reality depending on the perspective of the individual.

⁸⁰ *H uses*: Strattis fr. 43 (Edmonds); Hermipp. fr. 47.10 (Kock). *Workshops*: cat. 8. *City-Walls*: Arist. *Ath.* 50-1. Cf. e.g. Postgate 1994, 49 (Near East). *Streets*: D. 55.28; D.L. 6.41. Cf. Gunnerson 1973 (Near East). *Undergr und structure*: cat. 4. Cf. Weyel 1997 (Neolithic period). *Abandoned rooms*: Room 6-56 of house C at Haliëis (Ault 1994a, 150-1 with discussion); room 6-31 of house D at Haliëis (Ault 1994a, 166 with discussion). *Abandoned areas*: Garden of Heracles (*JG XII* 8.265, cf. Alcock *et al* 1994, 149). Cf. Joyce and Johannessen 1993, 138; Cameron & Tomka 1993, 124-6. *Water b dies*: Pl. *Lg.* 764B. Cf. Dixon 1972b, 32 (Egypt); Fishwick 1987 (Italy); Panoff 1970, 244 (New Britain).

⁸¹ Egypt: Dixon 1972b, 32.

In III 1, I have shown that dumped and carefully deposited waste could end up at the same location. Ritually deposited and dumped objects, for example, could be deposited in underground structures by being cast into them (III.1.2, 12). Although this example is an extreme case, it nevertheless reminds us that criteria for the identification of disposal practices must be carefully developed. Dumped votive deposits, I suggested, can be identified by a combination of factors, including depth of a structure and mixed fill or being part of a construction fill (III.2.1).

Contexts

Disposal practices occurred not only in settlements, I showed, but also in sanctuaries and cemeteries, albeit at a lower rate. Votive offerings and the remains of the god's portion, I suggested were not only carefully deposited, but also carelessly dumped. More specifically, old-fashioned dedications or votives destroyed during wars, for example, were likely to be finally dumped in the course of rearrangements of sanctuaries, as was the case in the panhellenic sanctuaries of Zeus at Olympia, Isthmia and Nemea as well as the Akropolis of Athens. The earliest disposal practice of my unrepresentative sample occurred in the pan-Hellenic sanctuaries at Olympia in the first half of the fifth century, making use of a technique already used in the so-called *tyrannis* debris (cat. 35): the concentration of waste objects in underground deposits, which would remove them from sight and at the same time make use of them as construction fill. In terms of sacrificial waste, I suggested that the remains of the god's portion were occasionally considered waste and dumped in the context of sanctuaries and *agorai*.

Disposal (and *de facto* recycling practices), which occurred in all four contexts, included the treatment of *ostraka*. They were found in all four contexts in construction layers. However, while in the Kerameikos large amount of *ostraka* were finally dumped for various purposes (dumping and/or recycling), they seem to have been moved together with earth in the case of the Akropolis of Athens (dumping and/or recycling)

Infrastructure and organisation

The collection of waste and *kopros*, in particular, was in Athens and perhaps also in Thebes and other classical *poleis* run by private entrepreneurs such as the *koprologoi* (cf. II.5). The role of the *polis* seems to have been restricted to setting the framework, in which these entrepreneurs would have to operate. For example, the *polis* authorities prescribed the distance at which the *koprologoi* were supposed

to finally deposit the *kopros* they had removed from cesspools. *Polis* authorities also regulated the disposal of waste (and sometimes even its further use) of sanctuaries, *agorai* and streets by prohibiting the disposal of certain types of waste or waste in general. These measures may be understood as protections of the common places of the *polis* (τὸ δῆμιον) from the defilement by individuals, which is attested in other situations as well (cf. e.g. Arist. *Ath.* 50-1). The *polis* not only issued these legislative prohibitions, but also was responsible for the punishment of pollution of common grounds and any other legal quarrel on illegal waste disposal. It is perhaps noteworthy that, in contrast to modern Europe, the courts at Athens did not have to decide whether a layer containing waste was to be interpreted as recycling or as illegal waste disposal. Modern cases of such disputes include noise barriers constructed with waste (Koch *et al* 1986, 33) or valleys being terraced for the construction of a motorway (K. Popp pers. comm.).

Polis authorities appear to have played an active role in the provision of public sewers, which at the same time functioned as drainage systems for storm and excess water. In Athens, the *polis* just provided the main drainage and the individual households had to connect themselves to the system, if they wanted to change from cesspools to water closets (cf. pl. 7; Young 1951; Tölle 1994). *Polis* authorities also seem to have been involved in the erection of public latrines in Athens by the fourth century B.C.

Elias and disposal

The spatial disposal patterns of (water and) *kopros* changed considerably from the geometric to the classical period and this was mainly due to the activity of *polis* authorities, as I have noted above. The written disposal regulations since the late sixth century B.C. and the threat to punish trespassers as well as the regular occurrence of complex drainage systems in the fourth century B.C. clearly show that the *polis* had monopolised power by the classical period. The effects this monopolising process had on the individual, including refinement of cleansing methods, fit nicely in Eliasian framework. Changes in the personality structure are expressed by Elias in terms of a trend towards an increase of self-constraint. In chapter II I have argued that such a trend can be observed in Athens on vase paintings depicting symposia.

IV. RECYCLING PROCESSES AND ACTIVITIES

The practice of recycling in ancient Greece has been attributed to straitened economic circumstances, on the level of both the *oikos* and the *polis* (cf. I.1.1). It has also been linked to the material reprocessing of metal, in particular precious metals like gold and silver. It has also been argued that recycling of other materials, such as ceramic and marble, was not considered worthwhile, implying that the only reason for recycling was economic.¹ On the other hand, we must note that recycling was also carried out for political and aesthetic reasons, and that recycling encompassed practices as diverse as reutilisation and material reprocessing.² If we bear in mind the process of ostracism and the routine action of the crushing of potsherds for the production of temper, it becomes obvious that it is reductionist to claim that recycling was only carried out for economic reasons.

In this chapter, I will argue against such simplistic views. I shall demonstrate how complex and wide-ranging ancient recycling practices were and how far they can help us penetrate key aspects of ancient Greek society. An objective of this chapter is to demonstrate the variety of activities which can be classed as 'recycling' and the range of materials used by different people for the same purpose (such as writing upon *ostraka* in an Athenian *ostrakophoria*) or for a specific function (fragmentary pottery as a defensive weapon). The categories of material culture considered include votive offerings, sacrificial, slaughter and consumption debris, organic waste, waste water, building material, architectural feature and places. I first sketch some of the basic parameters of the different meanings of and attitudes towards recycling activities and the stages of the various recycling processes (IV.1). Then, I analyse recycling practices from a contextual approach. More specifically, I aim to examine the similarities of and differences between the four contexts with a view to ascertaining how far recycling practices were shaped by, and shape, the perception of private and public places (IV.2-5).

On a methodological level, it is not always easy to identify recycling practices and to distinguish them from multiple use, as it is unclear whether objects were

¹e.g. Rouse 1902, 346; Braun 1970, 194; Eggers 1986, 264; Vickers 1992a, 53; Karageorghis & Kassanianidou 1999, 184.

²*Value*: e.g. Tyrannicides (Cabill 1985; Thompson 1979). *Recycling*: I.2.3.

considered waste prior to their modification, either by the society as a whole ('objective waste') or by single individuals only ('subjective waste'; cf. I.2.3 s.v. waste). We shall see that this was true for graves functioning also as lavatories or shelters, hides and bones from slaughtered animals which served as secondary raw material, and *amphorai* used as burial vessels. In the majority of cases, however, the line was more clear-cut.

IV.1 Concepts and terms

When recycling is not conceived of as a fixed behaviour, but a social and cultural phenomenon, its meaning is not constant, but flexible, depending on the social context, the situation and the time. In this section I discuss a representative selection of attitudes towards and meaning of recycling processes and practices with a view to offering insights into the motives and intentions behind recycling, resulting in a wide range of views of a specific social action. Special attention will be given to different evaluations of particular recycling practices with a view to providing insight into the diversity of such practices.

IV.1.1 Recycling as an emergency measure

Periods of adversity, it seems, are a good prompt for recycling practices. This is true for people with a low social status (cf. app. B; II.2.2), but societies at war or immediately after a war tend to have a very practical approach to their material culture. In such periods, individuals and *poleis* used broken and intact objects as well as building material from destroyed private and public structures for purposes other than their original ones. In Athens, for example, the building material of ruined temples and funerary monuments was reused in strategically important walls after the Persian Wars (cat. 203, 205, 273; IV.5.5), while in Koroneia roof tiles served as building material for the erection of the fortificatory walls (cat. 198). Similarly, in the settlement of Kalabaktepe, Miletos, old marble blocks and roof-tiles served as provisional building material after the Persian Wars (cat. 48B). That the use of inappropriate building material on a large scale (together with an unprofessional building technique) is inevitably associated with scarcity is argued for by Vinogradov and Kryzickij (1995, 18) who concluded that Olbia was in a crisis when the wall containing mostly secondary material was erected.

When necessity was great enough, individuals made use of objects belonging to a sanctuary. In one of the sanctuaries at Miletos, *perirrhantheria* served as the fire-place for a provisional shelter after the Persian Wars (cat. 230). When at war, votive offerings, in particular those of gold and silver were highly desirable for political leaders and army commanders, since they could be minted into coins. There is a long list of examples in which metal offerings were removed from *temenoi* to be converted into coins, (of which it was hoped that they would bring a positive development (ἐπὶ σωτηρίᾳ) during specific wars; cf. Linders 1996; 1997).

The melting down of votive offerings for the payment of troops was interpreted in different ways. The minting of the votives from the sanctuary of Apollo at Delphi by the Phocians in 356 B.C. and 347/6 B.C. was classified as robbery and plundering. It was also classified as bad behaviour and sacrilege, when carried out by a tyrant to pay his army.³ The same practice carried out by the Athenians in their own city-sanctuary in 407/6 B.C. got a better press, probably because Athena had been promised that the gold parts of the statue or statues of the Nike would be repaid.⁴ The only exception was Demetrios' account of this event in *De Elocutione* 281, cf. app. G.3), who viewed the melting of the Nikai as destructive and considered it both blasphemous and insulting to the goddesses.

IV.1.2 Recycling as an economy measure

Recycling as an economy measure aims - just like the recycling practices discussed as 'compromise solutions' - at the economical use of resources (cf. Spitzer 1989). However, whilst 'compromise solutions' tended to be viewed negatively, economy measures had more favourable connotations. Economy measures occurred, for example, when buildings were built with second-hand material in order to save time, money and working forces.⁵ That the aspect of economising was a common motivation for Romans for the reuse of building material can be deduced from the expression for reused building material: *spolia*

³*De phi*: D S. 16 56 6-7; Treister 1996, 284. *Dionysos the Elder*: Pritchett 1985, 163-5; Treister 1996, 284.

⁴*Recycling of the Nikai*: Harris 1995, 272-5 (complete list of literary references of this historic event); Linders 1997, 33 n. 18 (references). *We ght*: Thompson 1944, 178. *Number*: Linders 1996, 123 n. 13. *Other recycling practices*: *GI*³ 316.

⁵e.g. Townsend 1995a, 31 for Building C in the Athenian *agora*

opima (Höpfner 1987, 162). Greek literary sources are less explicit. However, the use of different qualities of stone as well as the fact that the cheapest kind of stone was often used together with reused building material in the invisible parts of the building indicate that the aspect of saving played a rôle in the planning and construction of temples in ancient Greece (cf. IV.2.5).

IV.1.3 Recycling as a symbolic statement

The reuse of building material for reasons of time and economic necessity need not exclude the possibility that it was also practised to make an explicit statement. One example, which has often been discussed as symbolic reuse, is the use of old building material from the temple of Athena and the pre-Parthenon for the Akropolis walls (cat. 203-5). The architecture of the temple of Athena was imitated exactly in one section of the northern Akropolis wall (cat. 205) and I believe that this is the most plausible example of reuse with the intention of creating a symbolic object. We cannot know exactly what statement was being made by the Athenians (nor how the Persians interpreted it). Hölscher (1998a, 98, 99) has suggested that the Athenians built this monument to remind themselves of the sacrilege of the Persians - the destruction of the Akropolis. In relation to the glorification of the Persian wars after 479 B.C., in particular in Athens (Hölscher 1998a, 84-103), I think it equally likely that the message was more one which emphasised the rôle of the Athenians: despite sacrifices and losses, victory came in the end for Athena and the people of Athens. The conspicuous recontextualisation of the past or past events is a powerful way of interpreting and giving significance to historical events. Another case in which a desperate practice may have had symbolic intentions was the melting down of the statue or the statues of Nike (cf. IV.1.1). It is also possible that the melting of the Nike or the Nikai was interpreted by some as a good omen: money spent to gain victory.

IV.1.4 Punishment

In a society, in which public places with monuments functioned as the historic and cultural repositories or 'museums' of their day and were just as important as written sources in keeping history alive, their destruction or permanent removal was a powerful way of rewriting history and punishing individuals for their bad

behaviour towards the community.⁶ The melting of the honorific statues of Demetrios of Phaleron was such a case of permanent elimination from the communal memory. Some ancient sources stated that at least some of the metal was made into chamber-pots. This seems to have been a reflection of the low esteem in which Demetrios was held: it may be interpreted as a public humiliation.⁷ The fate of the statue of Hipparchos, son of Charmides, did not aim simply at eliminating him from communal memory, as his statue was not just removed from the Akropolis in order to be melted down. The metal from this statue was reused for a pillar upon which the names of sinners and traitors were inscribed - Hipparchos' name included (Lycurg. *Leocrat.* 117, 119; cf. Treister 1996, 268). His fate was thus to be remembered as a traitor.

IV.1.5 Unacceptable behaviour

The recycling of votive offerings for purposes other than the creation of new cult furniture and dedications was not socially accepted (cf. IV.1.1). This judgement was also applied to the procedure of casting new equipment for a sanctuary, if it was not properly carried out (cf. IV.2.1). Similarly, the habits of scavenging animals, which may be termed in accordance with my framework as de facto recycling, were not conceptualised as eliminating processes of biodegradable matter. Instead, the majority of ancient Greek literary sources tended to emphasise the supremely impossible nature of the kind of food which scavengers consumed.⁸

IV.1.6 Crime

Recycling practices which were legally prohibited included the removing and spreading of κόπρος (as manure in farming) in fourth-century Chios (Sokolowski 1969, no. 116.5-20), if κοπρέειν was indeed used as a synonym for κοπρίζειν. The decree issued by the *boule* of Chios probably aimed at preventing the preparation of the land belonging to the gods for agricultural purposes (Dillon 1997, 125). To ensure that there would be no illegal recycling,

⁶e.g. Barber 1992, 112; Maaß 1995, 151; Thomas 1996.

⁷*Relevant sources:* Strab. 9.1.20; D.L. 5.75-7. Plu. *Mor.* 820E stated that the statue of Demades was also recycled into chamber pots, but he had confused Demades with Demetrios (Carrère 1984, 203 n. 1).

⁸*Modern attitudes:* e.g. Scobie 1986, 420; Rathje 1992, 39. *Ancient attitudes:* Henderson 1975, 193 no. 417; Parker 1996, 360 with n. 17.

the legislation stipulated the high fine of five *straters* for both disobeying the legislation and for anyone who saw it being violated but did not denounce the perpetrator. Manure was also a concern of Roman legislation, though not in the context of sanctuaries. In Roman law, the removal of manure from a dump without the owner's permission in order to spread it on the fields was considered an offence (cf. Buck 1983, 30 with n. 206).

IV.1.7 Recycling as business

For some people, recycling processes were not associated with elimination and destruction, but with money. For scavengers (ἀφανιστής), *koprologoi* and scrap dealers, for instance, second-hand objects and secondary raw materials were a source of income.⁹ It is perhaps, noteworthy that *koprologoi* may have acted as scavengers, although Aristotle (*Ath.* 50.1; app. G.1) classified them as cesspool-cleaners. As I will discuss below, the sale of recyclable objects was not restricted to the domestic context, but also occurred in sanctuaries (IV.2).

IV.1.8 Recycling as autarky

In his *Timaios*, Plato discussed the creation of the physical universe by the Demiurge. Timaios, an expert in astronomy and an experienced statesman, gave an account of how the universe came to be, up to and including the origins of humans. He (*Ti.* 33C-D, cf. app. G.3.) stated that the Demiurge selected the idea of the Living animal as the model for his masterpiece. Consequently, the Kosmos was seen as a living, organic whole.¹⁰ However in contrast to other biological creatures, the universe would need no eyes, ears, nose, mouth, digestive organs and anus, because it was totally self-sufficient (αὐτάρκεξ). It could manage to exist without eating and expelling what remained undigested, because it was created in a way that it could resupply its own wastage (ἡ ἑαυτοῦ φθίσις) as food. The recycling process was conceived of as taking place within the universe, and it is stressed that nothing went into it or came out of it from any side. The universe was regarded as containing within its all the things necessary for living.

⁹ Ἀφανιστής: LSJ. *Κοπρολόγοι*: app. E, s.v. settlement (pp. 451-4); II.4.2. *Scrap-dealer*: Rostoker & Gebhard 1980. 352; Treister 1996, 282.

¹⁰For further implications of the choice of the ideal living animal as the model for the universe cf. Adams 1997, esp 58.

Self-sufficiency (αὐτάρκεια) was more than a logical consequence of the notion that the universe is everything and that there is nothing outside it from which it can draw. Autarky was an ideal, since the creator 'conceived that a being which was self-sufficient would be better than a being which was in need of other things.' Self-sufficiency was also an ideal for human activity, for the first society of the Republic, which Glaukon disparagingly called 'a city of pigs', lived peacefully with its neighbours due to its self-sufficient way of life (Pl. *R.* 2.372D-373B. Cf. Preuss 1997, 16). Indeed, Socrates claimed that this simple, small-scale city was the true city, a city that was healthy just as an individual was healthy.

IV.1.9 Recycling as a manifestation of virtue

Recycling also had positive connotations for the Cynics. In contrast to Plato, however, they believed in making use of other people's waste. Illustrative of the Cynic understanding of recycling was the anecdote that a mouse taught Diogenes to adapt himself to different circumstances, when it slept in a corner of the room (D.L. 6.22). This story draws attention to the abilities required from a person who wants to reutilise waste most efficiently. This person needs to view the world with the eye of a mouse, that is, to disrespect the classificatory system of humans in general and the value of dirt in particular, since dirt, it can be added, prevents most of the recycling practices. This enabled some Cynics to anoint their bodies with the sand-oil mixture other people had scraped from their bodies and eat fruit from a tree upon which another person had committed suicide (cf. app. B, p. 389 with n. 36). Efficient reutilisation (and multiple use) also requires the ability to uncover formerly unseen properties of an object. This ability may be called, after Schildkrout and Pido (1996), 'the analytical gaze'. This 'analytical gaze' enables Diogenes to view an empty *pthos*, lying around in the Metroon, as large enough to give a person shelter for the night (cat. 226).

IV.1.10 Recycling as a means to maintaining a good relationship to the gods

A rare example which justifies the recycling of metal votive offerings from sanctuaries is given in an inscription from the Athenian sanctuary of the Heros Iatros (*IG* II 839.42-3; 840 28-30, cf. Linders 1997, 36 with n. 43). It states that the melting of votives served the purpose of establishing a good and pious relationship between the gods and the parliament on the one hand and the people

on the other hand (ὅπως ἂν τούτων γενομένων ἔχει καλῶς καὶ εὐσεβῶς τῆι βουλῆι καὶ τῶι δήμῳ τὰ πρὸς τοὺς θεούς). Why melting and creating anew would please the gods is not known, but I suspect that the small and unrepresentative metal offerings were collected to serve as secondary raw material for the production of more representative votives.¹¹ That conspicuous display was indeed an issue in ancient Greece can be deduced from textual references to the importance of material culture in creating impressions of power and wealth and by the practice of making things look more valuable than they are, for example, by coating bronze and wooden cores with gold. If my assumptions are correct, the making of new objects would please the gods, as it made their sanctuary appear wealthier and more prosperous, something which was perhaps of crucial importance for the self image and self-confidence of a small sanctuary near the Akropolis.

IV.1.11 Greek terms for recycling

Verba composita of κόπτειν such as περικόπτειν (e.g. D. 24.111, 121, cf. app. G.3) and κατακόπτειν (*Demetr. De Eloc.* 281, cf. app. G.3) refer to the first stage of material reprocessing, the mutilation or destruction of the object. In the official inventories of the melted votives, the so-called καθάρσεις-inventories (cf. IV.2.1), the verb καθαίρουσιν meaning 'to take down' or 'to destroy' is often used. The last stage of recreating was expressed by Pausanias (10.10.6) with the phrase 'to make anew'. For the second stage, that of melting, Demetrios used the term χωνεύειν, and Lykourgos (117) συγχωνεύειν. Apparently, there is no term for the entire process, since Aristotle (*Ra.* 720), Philochoros *fr.* 141 (FGrH) and Pausanias gave a descriptive account of the procedure. Philochoros, for example, paraphrased the material reprocessing as 'done from the golden figures of Nikai' (τὸ ἐκ τῶν χρυσῶν Νικῶν) and a decree (ED 230) of the first century A.D. 'to use' (καταχρήσασθαι).

IV.2 SANCTUARIES

The categories of material culture considered in this section are dedications, potsherds, sacrificial remains, consumption and organic waste, as well as building material. They are discussed with respect to the variety of purposes for which

¹¹*Types of offerings*: Forsén 1992

they were recycled and for the exploration of the organisation of recycling processes as well as the extent to which sanctuaries established a secondary-materials market to increase their finances.

IV.2.1 Votive offerings

The practice of recycling votive offerings from sanctuaries has not previously been discussed in relation to the different kinds of sources, namely literary, epigraphic and archaeological sources.¹² This may perhaps be due to the lack of a systematic archaeological study on the recycling of dedications, as archaeologists have focused exclusively on the recycling practices of votive offerings in the workshops of the sanctuary of Zeus at Olympia. Such a systematic analysis is beyond the scope of this thesis. My discussion will, however take both written and archaeological sources into account. The kind of recycling practices I consider include those by which (old) votives were reused to make new votives and other items used or displayed within sanctuaries, but also the recycling of votive offerings into items which were used outside of sanctuaries. I discuss these practices within the parameters of time and geographical region, as far as this can be inferred from the limited sources.

Recycling could take place outside of sanctuaries before an object became a dedication. At Athens, for example, the booty from the Persian wars were transformed into golden shields, while, at other places, they were transformed into bars (χύματρα) or melted down into statues, such as the Athena Promachos or the so-called Snake column in Delphi¹³ Treister (1996, 267) stated that this practice was more common in the first half of the fifth century and less common in the fourth century B.C. This statement needs modification in the light of Siewert's (1996, 144, 146) study of votive offerings from the Zeus sanctuary at Olympia. He convincingly argued that around 444/3 B.C. trophies and booty were melted and made into bronze bars. When arms and armour were dedicated at a sanctuary, they seldom seem to have been later melted (Jackson 1991, 243-4).

¹²Written sources: e.g. Rouse 1902; Linders 1972; 1989-90; 1992; 1996; 1997. Archaeological sources: e.g. Heilmeyer & Zimmer 1987; Volling & Zimmer 1995.

¹³Shield: Treister 1996, 267. Athena: Hopfner 1987, 167. Snake-column: Linders 1997, 36 with n. 43. Athens: Treister 1996, 267. Further examples: Lonis 1979, 163-71; Pritchett 1971, 99; Krumeich 1991; Hutzten-Bohlen 1992, 18-9; Rice 1993, 242-3. Cf. Treister 1996, 267.

Unauthorised removal of dedications was not tolerated in Greek society and was synonymous with robbery or theft (IV.1.1, 4). Thus, the looting of the sanctuary at Delphi by the Phokians and the minting of coins of metal dedications to Apollo was considered socially unacceptable. When formal promises were made to restore the losses, inter-contextual material reprocessing was tolerated. The list of authorised and unauthorised recycling practices is quite long and in nearly all of the cases metal votive offerings were minted into coins (for army pay; cf. IV.1.1). The place where the transformation process took place varied from situation to situation. In the case of the Phokians, the melting and minting may have taken place in the vicinity of the sanctuary. When the Athenians melted one or two statues of Nike to mint coins so as to have the financial means to continue the war against Sparta, the transformation process most likely took place at the *agora* of Athens.¹⁴

The reuse of votives outside of the context of sanctuaries is not well documented. Such a case of inter-contextual reutilisation took place in Olbia, when the stone bases of statues of Zeus Eleutherios, Olympian Zeus, Apollo Delphinios and other gods were used as building material in the defence wall after the decline of the *agora* and *temenos* in the second half of the second century B.C. (Vinogradov & Kryzickij 1995, 8, 18). The situation was more complicated at Miletos, since the fragment of a *perirrhanterium* was reused within the *temenos*, not outside of it (cat. 230). More specifically, a small section was temporarily converted into a shelter after the Persian wars. Another case may have occurred in the Athenian *agora* after 425 B.C., if the bronze shield, booty from the Battle of Pylos, had served as a lid for the cistern it was found in (C. Mattusch, pers. comm).

The so-called *katairesis*-inventories, a rather rare type of document, provide evidence that votive offerings were melted down in order to create new cult-vessels or votive offerings.¹⁵ In the Hellenistic period, recycling was not authorised and supervised by cult personnel, but by the *polis* authorities (e.g. Linders 1989-90, 281-3). The dedications that ended up in the melting pot were

¹⁴For further examples of inter contextual recycling in Athens cf. Harrison 1990.

¹⁵List(s) of *katairesis* have been found for Athenian Acropolis dated to the 330s and associated with the activity of Lykourgos (Linders 1972, 75 n. 60; Harris 1988; 1991; 1992, Treister 1996, 268). *Artemis Brauronia* in 316/5 B.C.: Linders 1972, 73 with n. 44. *Oropos*: Rouse 1902, 345; Linders 1972, 51 n. 6. *Delian inventories* dated to the 170s-160s and 146/5 B.C.: Linders 1951, 51 n. 6, 69 n. 15; 1989-90, 284.

characterised in the inscriptions as votives, which had become useless, in need of repair, and those which were damaged or fragmentary metal votives.¹⁶ New cult-furniture, new votives and ingots were also made of from 'small objects', coins, broken leaves of gold crown, broken decoration from luxury vessels, or ὅσα μὴ ἐμ παραδόσει ἐστίν.¹⁷ This last phrase evidently denotes items which were kept apart by the temple staff and were not, therefore, among those formally handed over at the annual *paradosis*. It is possible that they were also mostly defective. At least in some *poleis* such as Athens, the melting and reproduction of dedications and cult-vessels did not take place in sanctuary workshops, but outside.

That dedications were also reused can be deduced from votive offerings that have been unearthed in Greek sanctuaries. At the panhellenic sanctuaries of Samos and Olympia, for instance, cauldrons from geometric tripods have been found in workshops associated with the sanctuaries (cat. 212, 216-7). They fulfilled a range of functions, including water or clay containers. The Olympian craftsmen working in the local bronze foundries also made use of a single tripod-leg as armour in a foundry (cat. 211), a bronze sheet of a shield as a stabiliser for the mould (cat. 8), *obeloi* as stabiliser for casting pans (cat. 210), metal vessels as secondary material for a cult statue (cat. 8) and other purposes (cat. 214). In the sanctuary of Zeus at Olympia, three *sphyrelata* made from metal relief vases from Urartu were also found (cat. 208).¹⁸ It is possible that the vases were dedications displayed in the sanctuary of Olympia which were then used as a secondary raw material. Greaves which seem to have formed a drain may show that the reutilisation of votives also occurred in other sanctuaries (cat. 219). Stone *stelai*, which had once held votive offerings, served as building material for the altar of Hera Limenia at Perachora (cat. 199).

Bronze foundries used a high proportion of secondary material as raw material.¹⁹ The workshops associated with sanctuaries were in this respect no

¹⁶*Useless*: Sokolowski 1969, no. 70.13-4, 31 3. (Oropos). *Leaking*: IG II² 1444.3 with Linders 1972, 54 with n. 27; Sokolowski 1969, no. 70 13-4, 31-3 (Oropos)

¹⁷*Small*: IG II² 1479.26-8 (cf. app. G.3; Brauron); IG II² 333C.27 (Athens). *Coins* Linders 1989-90, 281; 1992; 1997, 36 with n. 41. *Leaves and decorations*: Linders 1989-90, 281-3; 1992, 255-8 *Invis ble*. IG II² 333C 27 (Athens).

¹⁸For inter-cultural recycling of Greek silver coinage in Syria, Egypt, Western Persia and Asia Minor cf. Treister 1996, 266.

¹⁹*Classical bronze foundry at Thasos*: Zimmer 1990, 32 with n. 199 (references). *Mud brick Foundry at Athens*: Mattusch 1977, 359-62; Rostoker & Gebhard 1980, 351. *Scrap dealer*: Rostoker & Gebhard 1980, 351.

exception²⁰ In this light, the relative absence of geometric cauldrons, but the comparatively high proportion of griffin heads and tripod-handles in the pre-Hellenistic deposits of the panhellenic sanctuaries at Samos, Delphi and Olympia may be of importance; they may indicate the recycling of the cauldrons.²¹ In addition, the handy size of the sawn-up solid tripod-legs found in the same sanctuaries which would fit into bronze pans, may suggest that they were intended to be melted. If this suggestion is correct, the great number of fragmentary geometric tripod-legs found at Olympia may have been prepared for recycling, which was never completed. In the sanctuaries of Isthmia and Nemea, which had their own bronze foundries pre-Hellenistic deposits only contained fragments of metal votives. As in the other panhellenic sanctuaries discussed above, more solid bits of vessels such as rims and handles have been found (e.g. cat. 39). This may be due to taphonomic processes, but it is equally possible that the bronze sheets were reused. Traces of cuttings on metal votive offerings appear to support the recycling hypothesis (cat. 214-6). The compositions of the deposits in archaic and classical sanctuaries, with large quantities of terracotta figures, but only small quantities of metal offerings, may also hint at metal reprocessing in pre-Hellenistic Greece.²² It is also possible that the archaic metal deposits found in the sanctuary of Demeter at Bitalemi, which contained, amongst other finds, broken jewellery bronze bars in the shape of a disc, and bars in the form of rods, were storage pits for metal which was to be melted (Kron 1992).

To conclude, votive offerings such as metal votives, stone bases, and terracotta dedications were not excluded from recycling practices. Bronze Greece and Iron Age Greece were similar in this respect.²³ Dedications were recycled in different ways; they were part of foundation trenches (cat. 29, 35 (Layer I)) bedding for foundations (cat. 29), road fill (cat. 13), construction fill (cat. 35) or grading fill (cat. 6; III 2.1). They also served as secondary raw material for cult-statues, cult-furniture and votive offerings, building material, and functioned as a stabiliser for melting pans or a mould. A high votive recycling rate can be deduced from the manufacturing debris of a number of workshops at Olympia, dated to the late

²⁰ *Isthmia*: Rostoker & Gebhard 1980, 351.

²¹ *Olympian tripods*: Maaß 1976. The iron tripods are currently being studied by Dr. Volling *Delphi*: Rolley 1973.

²² e.g. cat. 6-43, add Karageorghis 1977, 196; Yon 1974 103; Karageorghis & Kassianidou 1999, 183 for finds from archaic Cypriot sanctuaries

²³ *Bronze-Age*: e.g. Karageorghis & Kassianidou 1999, 174, 184.

archaic and classical periods. Material reprocessing is epigraphically documented at the Akropolis of Athens, the sanctuary of Artemis in Brauron, the Amphiareion of Oropos, and the sanctuary of Apollo at Delos in the classical period. Material reprocessing was not restricted to the Olympian workshops, I suggest, but was also practised in the workshops of the sanctuaries at Nemea and Isthmia. The archaeological evidence does not only show that material reprocessing was practised in some sanctuaries since the late-archaic/early classical period and that material reprocessing for votives and cult-related objects was just one recycling practice. It also shows that old metal votives served as tools in the workshops of Samos and Olympia and perhaps as a drain in Delphi. This treatment stands in sharp contrast to the careful collection and storage of even small fragments broken from metal offerings. It finds a parallel in the careless treatment of fragmentary metal dedications (cf. III.2.1). If a large-scale study of disposal and recycling practices of dedications were to show that the use of votives as construction fill and as secondary material for 'profane' purposes begun in the fourth century B.C., this could be indicative of a change in the perception of votives or religious feelings.

IV.2.2 Potsherds

Various kinds of (*de facto*) recycling of potsherds are documented in sanctuaries. Two cases of reuse occurred, for example, in two deposits of the sanctuary of Demeter at Bitalemi. In one deposit, potsherds of large middle-Corinthian *skyphoi* were held together to cover two vessels (cat. 195); in the other, potsherds served as supports for inverted terracotta figurines or *oinochoai* stacked up in two horizontal rows to form a rectangular structure (cat. 196). In all cases, it is reasonable to argue that recycling took place in the sanctuary, probably as an *ad hoc* measure. The latter form of recycling most likely represented a routine practice among potters, as support for vessels whilst being fired in kilns.²⁴ Potsherds, which were inscribed with curses, have been found in chthonian sanctuaries (cat. 197). However, in contrast to lead, wax tablets and papyrus, potsherds appear not to have been commonly used as writing material for such practices.²⁵ Fragmentary pottery was part of construction fill for

²⁴*Potter's workshops associated with sanctuaries*: Heilmeyer 1972, 2; Sinn 1981, 42 with n. 73.

²⁵*Material*: Gager 1992, 3 with n. 5; Graf 1997, 133. *Places*: Faraone 1991, 3, 18; Gager 1992, 18 with n. 19, Graf 1997, 121.

foundation trenches (e.g. cat. 28-9, 43), enlarging (cat. 35) and grading and levelling sanctuaries (cat. 36). Since broken pottery has not been found in large quantities at a spot, it is reasonable to assume that many potsherds were moved together with the earth. It is, therefore, appropriate to term the activities leading to the redepositing of potsherds *de facto* recycling practices. In the Heraion of Samos (cat. 30B) and the sanctuary of Kombothekra (cat. 29), however, the evenly spread layers containing potsherds result from intentional recycling practices of potsherds. As layers of potsherds occur not only in sanctuaries, as I will show, but also in other contexts, it may be concluded with Sinn (1985, 134) that potsherds - like marble chips (cat. 35, 37) - were highly valued stabilising agents.

IV.2.3 Sacrificial, slaughter and consumption waste

It has long been recognised that objects made of skin, hides and bone circulated in sanctuaries, in the form of visitors and cult personnel wearing leather clothes or footwear, musical instruments used by musicians playing at sacrifices, or wineskins used at sacrifices or votive offerings.²⁶ In particular bone objects that were parts of clothing or jewellery may have been worn earlier by poorer people (cf. app. B), before they were dedicated to a god.

Little attention has been given to the recycling practices of the remains of the god's and the human's share of the sacrifice, as well as the hide, bones, skulls etc. of the sacrificial beasts from sacrifices that took place within or were associated with sanctuaries. These practices may be called recycling practices, if the remains of the god's share and the human's portion - sacrificial ash and bones - were conceptualised as food debris and the main purposes of the sacrifice was piety and provision of nourishment. If this view is accepted, it can be concluded that the slaughter of an animal in a sacred context did not exclude the optimal utilisation of the left-overs of the sacred act. This attitude towards sacrificial animals shows that optimising strategies commonly associated with the exploitation of living animals were also applied to carcasses.²⁷

²⁶*Find f v t ve offerings made of bone*: e.g. cat. 8, 15, 4 B, 206. Papadimitriou 1963, 113-4 (Brauron); Marangou 1969, 131-82 (Sparta). *Inventories listing bone objects*: e.g. Harris 1990, 76 (Athens).

²⁷*Secondary exploitation of animals*: Sherratt 1981; 1983; Halstead (1998, 4) who stressed that Sherratt had focused on the exploitation of domestic animals for secondary products and not for their carcasses. *Carcass exploitation in non-sacred context*: O'Connor 1993.

Remains of the god's portion (ἱερα θεομορσία)

There is a late reference to the use of sacred ash as a medicine (SIG 1171.12). We cannot exclude the possibility that this ash - as hides and κόπρος - was sold by priests. Another way of using the remains of the god's portion was its consumption. The consumption of sacrificial offerings which escaped burning may be compared to the consumption of unburned offerings made by beggars to Hekate.²⁸ This behaviour stands in sharp contrast to that of the priests, who were allowed to consume items placed ἐπὶ τὴν τράπεζαν (Gill 1974). A remarkable case of recycling has been uncovered in the foundation layers of the so-called temple D at Samos, which consisted of different layers separated by content (cat. 30B). One of the lower construction layers consisted of ash, probably sacrificial ash. The items deposited in these layers were not carefully treated, but deliberately broken to fit their new purpose. Consequently, it is reasonable to argue that the ash deposit - like all the other strata - fulfilled a practical purpose, perhaps keeping humidity as low as possible.

Skins and hides

In the Homeric period, sacrificial hides and skins were mostly processed into leather within the settlement (cf. IV.3.2).²⁹ There is evidence that in post-Homeric Greece skins and hides were sold to individuals (cf. Jameson 1988, 108; IV.3.2). Since up to thousands of sacrificial beasts could be killed at a single sacrifice, and hides were highly valued, the selling of hides by priests and officials was probably a lucrative business.³⁰

There is no doubt that the majority of sacrificial hides and skins were not recycled within sanctuaries. Indeed, I can only think of three cases in which this is likely. One case was most likely an internal recycling practice, specific to the Dipolieia or Diipolia at the Athenian Akropolis, a feast in honour of Zeus Polieus. Here, the hide of the sacrificed ox was regularly reused and stuffed with hay.³¹ The stuffed ox was displayed in the sanctuary of Zeus to remind everyone of its fate, killed for the transgression of eating the mixture of grain

²⁸ *Bustirapa'* Semon. fr. 7.56 (West, cf. app. G 1). Cf. Catul. 59.2-3; Teren. *Eun.* 491. *Beggar.* e.g. Bolkenstein 1929, 65-7.

²⁹ Hom. *Od.* 12.395. *Selling of hides:* Nilsson 1968, 84-6; Straten 1981, 80.

³⁰ *Scale of sacrifices:* e.g. Morris 1996, 123. *Value:* IG II² 1496 (Dermatikon inscriptions of Athens 334/3 B.C., cf. Jameson 1988, 96; Pl. fr. 143 (Kassel & Austin), 188 (Kassel & Austin), cf. Jameson 1988, 107-12, Davidson 1997, 118; IV.3.1. *Priest's share:* cf. III.2.3.

³¹ Paus. 1.24.4; 1.28.10; Porph. *de abst.* 2.28-9.

and barley spread on the altar. It was also a reminder that taking what was the god's share would inevitably lead to death. No remains of stuffed oxen have survived. However, four vessels by the Gela painter (cat. 198B) depict this scene and, thus, of the extraordinary practice of recycling the hide of the slaughtered oxen. The second case is discussed in connection with the nature of the foundation of the so-called Rhoikos temple at Samos. One theory assumed that this archaic monumental temple was built on a thick layer of chips supported by a layer of outspread hides (Walter 1990, 122). If this assumption is correct, the use of hides was probably also an internal recycling practice. The third case of the recycling of hides occurred in the bronze workshops associated with sanctuaries, which used bellows made from animal skin (Mattusch 1988, 232-3), although the origin of the skin is unclear.

Bones

Astragaloï, the knuckle-bones of ruminants, which frequently turn up in Greek sanctuaries (e.g. cat. 15), could have been recycled on the spot for gaming or being used in divination or as inexpensive dedications (e.g. Nobis 1976-7; Jameson 1988, 115-6, ns. 8-9; Forstenpointner *et al* 1999, 229). It is, however, difficult to estimate the extent to which the knucklebones of sacrificial animals were reused in the context of sanctuaries. The working debris from the so-called Phidias workshop at Olympia suggests that the material reprocessing of bones took place in the classical workshops associated with the sanctuary of Zeus (cat. 8). I think it likely that the bones found in the Olympian workshop derived from sacrificial beasts because the waste materials found associated with the bone-waste in the Olympian workshop are the remains of votive offerings serving as secondary material in manufacturing processes for a cult statue. The occurrence of material reprocessing of sacrificial bones in the sanctuary of Zeus would support my observations at III.2.3 that bones were not treated with much care and respect at Olympia. It seems plausible that bone workshops located close to sanctuaries - such as the one located on the Akropolis of Klazomenai (B. Hürmüzülü pers. comm.) - were supplied with the *femur*, *humerus*, *metacarpus* and *scapula* of cattle from the near-by sanctuary.³² In their recent article on the Bronze Age sanctuary at Kition, Kypros, Karageorghis and Kassianidou (1999, 181, 182) made a strong case for bones being used as fuel at this site. The major publications of the pan-Hellenic sanctuaries of Greece do not mention deposits

³²*Bones suitable as secondary raw material*: Hilzheimer 1934, 1467, 1470; Schiering 1991, 161 with n. 137.

of burned bones and bone ashes close to workshops. Nobis (1976-7, 274) noted, however, that bones may have played a significant rôle in the smelting of copper at the workshop area (TATTT) of the sanctuary of Astarte and Aphrodite at Tamassos, Kypros, which was in use between the sixth and the third century B.C.

Skulls/horns

Little is known about the recycling of bukrania. The only activity, which may perhaps be interpreted as reuse, is the accumulation of horns, either with or without skulls, for the erection of an altar. Horn-altars (βωμὸς κεράτινος) are documented for Delos, Dreros, Kato Simi on Crete and Halieis (Brein 1978, 121, 122, 132-8; Jameson 1988, 92; Forstenpointner *et al* 1999, 225, 228). The manufacturing waste from workshops associated with sanctuaries, and inventories listing objects made of horn together with those of ivory indicate that horns were valued as secondary materials in both domestic and sacral contexts.³³

Intestines

A Sacred law of the early fifth century (Sokolowski 1969, no. 9, cf. app. G.1) indicates that guts were not thrown away, but were occasionally cleaned in sanctuaries. Whether the further recycling took place - for example, the stuffing of guts to make sausages - also took place in *temenoi* is not known.

IV.2.4 Organic waste

The use of recyclable objects within sanctuaries is nearly exclusively based on epigraphic sources. They highlight the recycling practices specific to each sanctuary. It is difficult to estimate to what extent we can generalise from the surviving regulations of the Sacred laws. Thus, this section focuses more on how various sanctuaries dealt with organic substances, including *kopros*, mud, waste wood, straw and hay.

Κόπρος, ἰλύς

A number of sanctuaries increased their finances through the sale of κόπρος and ἰλύς as manure.³⁴ The exact origin of these substances is not known in all

³³*Finds*: e.g. cat. 8; Ruscillo 1993, 202 (Mytilene). *Inventories*: IG II² 1517 B.199-212 cited in Linders 1972, 46.

³⁴*Kopros*: Sokolowski 1962, no. 81.8-9; 1969, no. 67.27-30 (Tegea); SIG³ 963.21-6 (Amorgos), cf. Dillon 1997, 126. Buck 1955 (cited in Alcock *et al* 1994, 199-200 no. 18)

cases. The ἰλύς (mud, slime, sediment) sold in the sanctuary of Kodros, Neleus and Basile, located outside the Athenian city walls, came from the drainage ditch (τράφρος) running through the rural shrine. The origin of *kopros* is less clear. Weil (1876, 345 n. 3, cf. app. G.3; cf. Carroll-Spillecke 1989, 44) stated, in relation to the inscription of the garden and fields of Zeus Temenites, that it came from the herds owned by the gods, but this is just a speculation. It is also possible that the *kopros* sold as secondary raw material came from sacrificial animals and visitors. The sale of manure was not high on the agenda of priests, since priests were fined for not selling *kopros*. At the Athenian rural shrine of Kodros, Neleus and Basile, a practical solution was found: the farmer who bought the mud had to remove it from the drain.

Excrement and mud which was sold were used for agricultural purposes. The Sacred laws of the sanctuary of Zeus Temenites at Amorgos prescribed that the manure was to be used to enrich the vine and fig garden belonging to Zeus. Thus, this recycling practice may be termed internal recycling. Lawton (1995, 263) suggested that the mud of the ditch of the Athenian shrine was taken to the olive trees of the *temenos*.

Little is known of the scale of the sale of waste matter and the income from the sale. The only lease mentioning the number of baskets (ἄρσιχοι) a farmer was obliged to apply annually (not less than 150, holding one and one-third of a *medimnos* (c. 50 kg)) and their price (three *obeloi*) does not help in answering these questions, since this clause was apparently not a standard clause (cf. Garnsey 1992, 151).³⁵

Waste wood

The majority of Sacred laws prohibited the felling and uprooting of trees (Dillon 1997, 115 n. 25). However, five provisions have survived, ranging from the end of the fifth century B.C. to the second century A.D., relating to the waste wood, including broken boughs (τὰ θραυόμενα) and dry sticks/brushwood (φρύγανα), and occasionally brushwood (ῥάχος), as well as fallen leaves (φυλλόβολα).³⁶

Thompson 1989, 83. *Ilus*: Sokolowski 1969, no. 14.20-3 (sanctuary of Kodros, Neleus and Basile), perhaps also *IG II²* 2498 9-12.

³⁵*Leases*: Osborne 1987, fig. 2; Isager 1992.

³⁶Sokolowski 1962, no. 81 (uprooted); 1969, no. 6.6 (Eleusis regulating sacrifices, late 5th century: dry sticks); no. 37.6-7 (sanctuary of Apollo Erithaseus, Attica, late 4th century: dry

The people of Gortyn were the most relaxed about the use of waste material, as they were allowed to collect brushwood and dead wood and take it away with them. For this collection to be permitted, Dillon (1997, 116) considered either a strong community need or plenty of wood. The recycling of waste wood outside of sacred ground was prohibited at the shrine of Apollo Erithaseos and the Euboean sanctuary. The regulations for the shrine of the nymph Hyrnetho, and perhaps also for a sanctuary at Eleusis, were the most restrictive. The prohibition of the use of wood from the sanctuary of Hyrnetho may have been a protective measure, to keep the trees of the grove of Hyrnetho intact. The underlying assumption may have been that if people were permitted to gather the waste wood, they would also cut off whole brushes of trees, when they run out of waste wood. Another, more symbolic, explanation draws on the symbiotic relationship between trees and nymphs: whenever a nymph was born a tree was brought into being with her and whenever a nymph died a tree died with her, and vice versa (Dillon 1997, 119 n. 55). The odd phrase 'τὰ θραυόμενα' perhaps indicates a far more personal explanation for the exclusion of dead organic matter from activities related to the sanctuary of the nymph: Hyrnetho endured much in her life and was killed when pregnant by her brother. The dead wood would have been sacred to Hyrnetho, because it had suffered as she did before death. The two symbolic explanations had different implications for recycling practices. If the discouragement of using dead wood is explained in terms of the special relationship between trees and nymphs, it is possible that this kind of prohibition also applied to other groves sacred to nymphs. However, if this clause is considered typical for Hyrnetho, it was specific to the sacred land of this specific nymph.

The purposes and activities for which waste wood was used in sanctuaries were most likely the same for which freshly cut brushes were used. Priests and visitors may have internally recycled dead wood as firewood for the preparation of sacrifices, meals and hot baths.³⁷ The provisional beds made from leaves for the people accompanying a patient staying overnight in a sanctuary of Asklepios

sticks, fallen leaves, perhaps also ξύλα (cut wood) and κοῦρος (cut branches in leaf); no. 91 (Euboean sanctuary); no. 148.1-3 (Gortyn, grove, 3rd century: dry sticks, brushwood). Paus. 2.28.7 (grove for Hyrnetho: broken boughs). Not Sokolowski 1962, no. 36 (Akraiphia, 5th century: plants), since the verb συλλεγειν probably is an euphemistic paraphrasing of 'to cut'.

³⁷ Φρύγανα: e.g. Sokolowski 1969, no. 28.3, 8, 18, 22; no. 151C 14.

may have been made from fallen leaves (Ar. *Pl.* 663). The σκιάδες (shadow roofs) and σκεναί (huts) erected in sanctuaries were probably exclusively built from freshly cut branches, but the στιβάδες (heaps of vegetable matter covered with cushions and cloths) may have contained dead wood and fallen leaves.³⁸ Finally, brushwood may have functioned as raw material for brooms and laurel as fire-sticks for sacrifices (Hom. *h.Ap.* 109-14).

Straw and hay

Little is known about the function of straw and hay in sanctuaries. To my knowledge, it is only documented that καλάμη, stalks or straw of corn, functioned as wrapping for votive offerings (Hdt. 4.3) and that the hide of the sacrificed ox at the Dipolieia or Diipolia, a feast in honour of Zeus Polieus, was stuffed with hay (IV.2.3).

IV.2.5 Building materials

In this section, I do not aim to give a full account of 'under-roof-recycling practices', which occurred in Greek pre-Hellenistic sanctuaries. Instead, I shall discuss the recycling of old or abandoned architectural elements with respect to the range of purposes they served. I will also briefly discuss the ownership of waste building material.

The building material from destroyed or abandoned buildings within sanctuaries were often recycled on temples.³⁹ Old architectural elements of a temple have often functioned as secondary building material. For example, the temple of Athena of the Athenian Akropolis, the Artemision of Ephesos and the temple succeeding the so-called Rhoikos temple at Samos were all partially built with reused building blocks. Some architectural elements were recycled without major changes, while others underwent considerable reworking. Recutting could go as far as changing Doric columns into Ionic ones, cutting a block out of a column drum and removing parts which would not fit their new purpose.⁴⁰ Exclusively reusing building blocks in the invisible parts of the temple may be considered a strategy to keep costs low. If a temple was made from different materials, the most expensive was used for the superstructure, while recyclable

³⁸ Στιβάδες: Blech 1982, 398-9.

³⁹Cf. e.g. cat. 200; Hopfner 1987, 162. *Exceptions*: Nilsson 1968, 76.

⁴⁰*Column*: Hopfner 1987, 163-4. *Block*: Buchert in press, s.v. Delphi. *Removing*: Buchert in press, s.v. Olympia.

objects and cheap materials were used in the foundation layers. Such an economic measure was taken in Metaponto when the temple of Apollo (second phase) was built and at both temples at Sunion (Osborne 1985, 100). The reuse of building materials may also have been a way of expressing continuity, because the succeeding temples frequently took over the ground plan, the size and proportions and even the decoration of their predecessors (Buchert in press, s.v. Artemision of Ephesos). A remarkable shift in the use of recyclables in temples can be observed in the turn of the archaic to the classical period, when recyclables were no longer removed from sight and exclusively employed for the foundations, but put on display Höpfner 1987, 163).

Insight into the organisation of dismantling a temple and rebuilding it with old building materials can be gained from the Heraion of Samos (pl. 9), as Johannes (1937) suggested. The plan shows that in the course of the construction work different groups of columns were removed and reused as a group in roughly the same area for the same purpose. The columns of the northern peristasis were spared, probably because they were located outside of the actual rebuilding area. The groups of building material moved include the columns of the naos (red) and those south of the cella (green), which were just moved towards the west. The row of the western columns (yellow) was employed in nearly the same position of the new temple, namely its west end.

Reused building material has not only been found in temples, but also in sanctuary walls. The columns as well as the upper superstructure of the temple of Athena which were built into two separate sections of the northern wall of the Akropolis of Athens are probably the most famous cases (cat. 203-5). The two blocks of the so-called H Architecture are less well known, although they served two purposes after having been reclaimed from the waste stream: they served as covers for the Pelasgian wall at the Athenian Akropolis and functioned as writing material for the Sacred laws of the Akropolis of Athens - the so-called Hekatompedon inscriptions (cat. 201-2; app. G.3). At Samos, columns from the so-called Rhoikos temple served as a runway for transporting building material for the new temple of the Heraion (Walter 1990, 158). In the sanctuary of Aphaia at Aegina, deliberately broken architectural elements served as terrace fill (cat. 2). To my knowledge, a recycling practice as extreme as a (funerary?) altar

serving as a sculpture base is not documented for pre-Hellenistic Greece (Boston, Museum of Fine Arts, Inv.No. 23.1993, cf. Smith 2000).

The issue of the ownership of old building material has been addressed in connection with the Sikyonian Treasury (cat. 200). The fact that the architectural fragments of both the early buildings reused in its foundation are cut from the same soft stone, said to match stone from a quarry near Sikyon, supports the idea that they originally belonged to Sikyonian dedications. This would lend support to the idea that the dismantled dedications within the sanctuary remained the property of Sikyon, the original dedicator, and that the city could make use of them if it desired. Owing to the lack of comparable studies, it is not known whether this was a standard practice in the archaic period or whether the *polis* authorities responsible for a sanctuary decided for which building project dismantled material was to be used.

IV.2.6 Summary

Recycling was not taboo in sacred places. Building material as well as potsherds and marble chips seem to have been efficiently reused and reutilised. Höpfner (1987, 164) added a standard procedure of material reprocessing to this list, when he stated that roof tiles and potsherds were crushed to be used as high quality temper for building material. Metal offerings also seem to have had a high recycling rate. The melting of old and broken metal votives for the creation of new dedications appear to have been a standard procedure, whilst their reuse in sanctuary workshops was far less common. It is possible that the sawn-off geometric tripod legs excavated in the sanctuaries of Samos, Delphi and Olympia are not evidence of symbolic destruction, but the first stage of the process of material reprocessing that was ever carried out. Even sacrifices were used in recycling. The remains of the god's portion were occasionally consumed by people in need, and knucklebones and ashes appear to have been recycled. Perhaps even the bone debris found in the manufacturing waste of the so-called workshop of Phidias came from sacrificial beasts. Sacrificial skins and hides were marketable commodities, often sold by priests as part of their share of the sacrifice. A number of sanctuaries increased their source of income from the sale of secondary raw material, namely κόπρος, ἰλύς and hides. Not all of these substances were sold to individuals who would continue the recycling process in

their settlements. Substances used as manure seem to have been used by rural shrines for the nearby fields leased out by the temple society (νεωποιαί). Consequently, the provision of households and tanners with hides seems to have formed the core of inter-contextual recycling. The flow of recyclable objects into the opposite direction, from settlements to sanctuaries, seems to have been restricted to metal booty metal which was melted down into barrens as soon as it crossed the boundaries of a sanctuary as dedications.

IV.3 SETTLEMENTS

The categories of material discussed in the context of the settlement do not substantially differ from those discussed in the context of the sanctuary, except for dedications and building materials. I have omitted the former for obvious reasons. The latter, I omitted, because it would not have said anything not already discussed in IV.2.5. Instead, I include the recycling of waste water in my discussion, since this analysis offers important insights into the management of water. I also add a remark on the processing of human bones because of its intrinsic interest.

IV.3.1 Potsherds

The routine recycling of potsherds took place in settlements on a large scale. Children and adults for example, had toys not only made of leather, *astragaloi* and bones, but also of roundels.⁴¹ Whereas the leather-scrap and *astragaloi* were most probably not recut or worked over before they were used as toys, bones and sherds were often reshaped before they could fulfil their new purpose as part of a bone-doll (cat. 228) or as playing counters. Classical farmers placed a potsherd (ὄστρακον) on top of the clay poultice applied to a graft to prevent water from leaking in and causing the wood to rot (X. *Oec.* 14.4, cf. Thphr. *CP* 3.5.5). At Miletos, sherds were reused together with roof-tiles on a large scale after 494 B.C. in the so-called sherd-layer, one of the uppermost layers sealing the layers of destruction debris and providing an even and stable ground for further construction works (cat 48B).

⁴¹*Sherd-games*: e.g. Fittà 1998, 27. *Leather scraps for children*: e.g. Ar. *Nu.* 881. *Astragaloi/bones*: cf. IV.2.3.

A high percentage of potsherds were also recycled in workshops associated with settlements, and probably also in workshops associated with other contexts. Unburned potsherds seem to have functioned as test-pieces in kilns (cat. 221-2). Sherds from fired vessels may have been used as supports and separators in kilns and used as temper in the manufacture of new pottery after grinding.⁴² They were also used along with broken roof-tiles for the construction of the domes of kilns (cat. 221). These recycling practices may be called 'internal recycling practices', because the broken pots and potsherds came from the waste from the drying and firing processes.⁴³

Other recycling practices occurred on a smaller scale. Curses and good-will messages, for example, were scratched on to recycled potsherds, and not on the more common materials of lead, wax tablets and papyrus, before being deposited in wells and other deep holes within settlements (cat. 223). Sherds broken or cut to fit the mouth of a jar provided rough and ready plugs, as did the toes of *amphorai* occasionally (Koehler 1986, 54). Koehler (1986, 52-4) concluded that broken pottery was not considered the ideal stopper, since other materials have been found more commonly. However, a large scale study of the materials used as stoppers may prove that Koehler underestimated the recycling quota of potsherds as stoppers. In addition, a pair of potsherds balanced by a peg were placed over a small pit, which was filled with berries, to catch birds (Hughes 1996, 104).

The use of potsherd(s) as weapon(s) may also be seen as a recycling practice on a smaller scale, if the sherds were picked up from a broken vessel and did not derive from smashing an intact vessel. One source suggests that sherds may have been used as weapons: Lysias (3.28; 4.6.7) accuses the defendant of having threatened to kill his client with sherds. The fact that Lysias discusses not how likely it was that a potsherd would be used in this way, but the likelihood that the accused actually did commit this act, suggests that potsherds were commonly considered to be serious and dangerous weapons. Clay 'weapons' also feature during one specific event in mythology: the wedding feast of the Lapith hero Peirithoos (cat. 224).⁴⁴ Here, they are not used by humans, but by centaurs, half-

⁴²*Supports*: e.g. Kron 1992a, 645. *Temper*: e.g. Rathje 1992, 192.

⁴³*Evil spirits*: Potter's hymn (Sparkes 1991, 138 n. 17). *Potter's waste*: e.g. Preka-Alexandri 1992, 41, fig. 2.

⁴⁴*Exceptions*: LIMC VIII, 2, pls. 416-93.

animal and half-human, who threatened the Lapiths by holding the vessels over them. The *ad hoc* conversion of readily available objects into weapons is not restricted to the wedding of Peirithoos, but seems to have been part of the Greek, Lower Italic and Etrurian iconography of centaurs, as they never seem to fight with proper weapons, such as double axes or swords, but with clay or bronze vessels, tree branches and stones.⁴⁵ Thus, it is reasonable to argue that provisional weapons were typical for centaurs, whereas proper weapons were typical for humans. The binary opposition of human: centaurs and proper metal arms:improper weaponry is nicely depicted on the *kylikes* signed by Aristophanes (cat. 224). It can be argued that this pair of binary oppositions was not regarded as equal by Aristophanes, but was linked to values of superiority:inferiority and civilisation:savagery. More specifically, the superiority of the weapons and the person wielding them can be deduced from the fighting pair to the left of the *kylikes*, where the Lapith thrusts a short sword into the equine chest of the centaur, whilst the centaur hurls his vessel. It can be further argued that Aristophanes' depiction of the inferiority of provisional arms to manufactured metal weapons, and centaurs to humans, was structured by the anthropocentric world view of ancient Greeks (cf. Cartledge 1993).

Within my framework, an early fourth-century depiction of broken *amphorai*, which were used as containers when inverted, is of interest (cat. 225). The context and meaning of such recycling practices has been variously argued. I regard the ceramic fragments on this vase-painting, carried to the top of a building by a female figure climbing a ladder, as representations of the gardens of Adonis ('Αδωνιδος κήποι), essential ingredients in the private festival of the Adonia. I interpret the figure on the ladder as Aphrodite Ourania, who, with her presence, acknowledges her participation in and approval of the rites of Adonis. As such, I believe that this scene takes place in a settlement and that the recycling practices occurred in the context of the Adonia. Other archaeologists have interpreted the scene as Aphrodite on a ladder carrying a container of incense or apples. If this is so, then potsherds were reused in a mythical realm, but it is also possible that this depiction was informed by real practices (cf.

⁴⁵*Peirithoo* : Lampholder on side A of cat. 224 (Attic . *Clay vessel*: e.g. Naples, Mus.Naz. 81 50 (Palaiokrassa 1997, 687 no. 196 with fig. lower Italic). *Bronze vessel*: e.g. Tubingen, University S 10.1603 (Weber-Lehmann 1997, 725 no. 56; Etrurian). *Tree branches*: e.g. Basel AM BS 489, Copenhagen NM 14268 (Palaiokrassa 1997, 694 no. 268-9 with figs.; Attic). *Stones*: e.g. London BM 1929.11-11.1 (Palaiokrassa 1997, 694 no. 267 with fig.; Attic).

Edwards 1984, 71). I do not find this mythical interpretation convincing for two reasons. First, the image closely matches the description of the Adonia. Second, the use of broken pots in the Adonia is more convincing on a practical level than for the perfect world of the gods. More specifically, the use of broken vessels as flowerpots seems reasonable given that the gardens of Adonis were used for short periods only, and then disposed of into the sea or other watery sources⁴⁶; this function seems inappropriate for eternal use in a world of luxury. The latter point must have also struck Furtwängler, because he interpreted the vessels as intact, in order to sustain his mythical interpretation. This scene of vase painting is, to my knowledge, the only depiction of broken pots being used for planting the gardens of Adonis and burying small Adonis images.⁴⁷ Consequently, it is difficult to estimate the degree to which potsherds as well as cheap clay vases (χύτραι, ἀγγεῖα κεραμικά), baskets (ἄρριχοι) or wicker receptacles (κόφινοι) served as flowerpots and burial places.⁴⁸ If the scholion on Theokritos (17.2) can be read 'ἐν τισι ὄστρακίοις' instead of 'προαστείοις', potsherds were frequently used for these purposes, at least in later times.

For the participants of the Adonia, the gardens of Adonis were linked to extra-marital pleasures (Bonnet 1992, 134). Married women and the *polis* seem to have viewed these gardens much more negatively. Plato (*Phdr.* 276B-C), interpreted the gardens as a negation of the cultivation of grain and the order of Demeter.⁴⁹ In this view, the temporary flower-pots may have had strong symbolic implications, recalling the brief life-span of Adonis, and his 'impotence and tragic death' (Detienne 1985, 109). The broken vessels may have signified the worthlessness of the gardens of Adonis and the value which they stood for: Eros outside of marriage is of no good.⁵⁰

IV.3.2 Sacrificial, consumption and slaughter waste

The materials available for recycling practices included not only the remains of the human's share and the sacrificial skins and hides sold by priests and other officials, but also those from slaughter practices carried out in settlements either by cult-personnel or by butchers. In the domestic context, animals may not only

⁴⁶*Adonia*: Detienne 1985, esp. 109, Bonnet 1992, 134.

⁴⁷*Burial place*: Schol. on Pl. *Phdr.* 276B.

⁴⁸*High recycling rate*. Fantham *et al* 1994, 91. *Other vessels*: Detienne 1985b, 105.

⁴⁹*Interpretation*: Detienne 1985; Bonnet 1992, 134.

⁵⁰ *Symbolism of broken vessels*: II 2.2, p. 82.

have been killed for their meat, but also for their hides. In this case, hides may not be considered as recyclable objects. In addition, bones teeth and guts may have been appreciated as potentially valuable material (multiple use). Consequently, the following discussion is restricted to by-products of sacrificial slaughter, which were shifted to the settlement context.

Skins and hides

Different kinds of skins and hides were converted into leather by cleansing and tanning them.⁵¹ Textual references to hairy skins imply that the processing was reduced to a minimum (e.g. Hom. *Od.* 14.50-1). Leather had (and still has) a multiplicity of uses (Blümner 1875, 268 with n. 1). Owing to the scale and the frequency of this recycling practices, they may be called 'industrialised' recycling processes. Leather served as a secondary material for garments and shoes in all periods under observation as well as for parts of costumes worn in the theatre in the classical period.⁵² The warm skins of mountain hares were also wrapped around children to keep them warm when travelling (Hom. *h.Pan.* 42-3). Leatherware seems to have been typical for country people, shepherds and the poor through all times, whereas the upper 'classes' imported finer materials.⁵³ At Sikyon, for instance, rustics seem to have been referred to as *katonakophoroi*, wearers of sheep-skin tunics.⁵⁴ If Hesiod's (*Op.* 540-4) way of processing leather further into garments can be taken as representative for his time, farmers preferred cowhide for making winter shoes and goatskin for raincoats. Goatskin with its hair was worn by herdsmen when staying out overnight.⁵⁵ Goatskins were still used by Roman sailors as raincoats (Verg. *Georg.* 3.312-3). Leather served also as raw material for accessories, such as leather bags and belts.⁵⁶

Cattle or sheep hide also served as a cover or upholstery for seats in Homeric society.⁵⁷ Hides spread on the ground were also used as covers on which people sat or lie down on to avoid getting dirty from dust or sand.⁵⁸ Bedspreads made

⁵¹*Terminology*: Forbes 1966, 1. *Leather preparation*: e.g. Forbes 1966, 48-53.

⁵²*Shoes*: Forbes 1966, 58-60 (references). *Garment*: Cf. IG II² 1672.104 (329/8 B.C.); 1673.47 (327/6 B.C.). *Costume*: Ar. Nu. 538-9.

⁵³Stone 1984, 223-5; Jameson *et al* 1994, 294. *Contra*: Forbes 1966, 46.

⁵⁴Theopomp. *Hist. fr.* 115 (Jacoby; ap. Ath. 271A); Lévy 1974, 39 (rustic connotation)

⁵⁵Hom. *Od.* 14.530. Cf. Richter 1968, H 39 n. 242.

⁵⁶*Bags*: Hom. *Od.* 10.19-20; 13, 437; 17.197-8. *Belts*: Hom. *Il.* 21.30-1.

⁵⁷Hom. *Od.* 1.108; 14.49-51; 16.47; 17.32; 19.58, 97, 101; 21.177, 182. Hom. *h. Cer.* 196-7 (h. 2)

⁵⁸E.g. Hom. *Il.* 10.155; 11.843; *Od.* 3.38; 20.2, 95-7, 142.

of sheep fleece are also mentioned in the Homeric epics.⁵⁹ As with leatherware, a bed consisting only of hides was considered a pitiful bed (ἀεικέλια κοίτη) and signified rural origins and a low social position.⁶⁰ Whenever the elite slept in beds of leather, they either had other precious woven bedspreads, hides dyed with purple or were involved in undercover work.⁶¹ In contrast to the beds of the poor, a typical aristocrat's bed was soft and consisted of a bedspread covered with woven products.⁶² Beds for gods were covered with hides and skins, but they were the skins of bears and lions.⁶³ Consequently, it is only partly true that leather bedspreads were equally esteemed by herdsmen, the élite and gods in the Homeric society. That bedding (στρώματα) were still more highly regarded than hides in the classical period can be deduced from a note by Demosthenes (49.22), stating that woven bedding served as security for a loan. Perdikkas and Krateros, two of Alexander's courtiers, were said to have exercised under a tent made of goatskins, which covered a stadium, i.e. 600 feet (Ath. 539C with Gulick 1932, 439 note d). The extravagant luxury of the courtiers of Alexander in being able to use 600 skins was certainly not common and undoubtedly impressive.

Oxhide was particularly suitable for any part of a horse's harness, whips and for a variety of military equipment, including, shields, helmets, shoulder protection and armour.⁶⁴ The famous shield of Aias was covered with seven layers of cowhides (Hom. *Il.* 7.220, 248, 266; 11.545). Scourges were also fashioned from leather (Ath. 534A). Occasionally, hides seem to have been used for vintage equipment. More specifically, a couple of Attic vase-paintings may depict a wine press (ληνός) consisting of a shallow spouted trough on legs, presumably made of wood, in which sits a τρύγοιπος made of skins with handles instead of the widespread rush basket (cat. 294). The end of the handles were attached in such a way that the person crushing the grapes could hold it. In the theatre, masks were covered with goat skins, except for at Sparta where wooden masks were worn (Kachler 1991, 18-9). In Homeric times, the back of ships was

⁵⁹E.g. Hom. *Od.* 20.3, 142; 23.179-80.

⁶⁰E.g. Hom. *Od.* 14.51; 19.341; 20.139-43.

⁶¹E.g. Hom. *Il.* 9.659-61; 1.155; *Od.* 11.187-9; 20.2-3, 95-7, 142; 23.179-80, 201; *Pt.* 315D. Cf. Forbes 1966, 46, 74 n. 196 (goatskin).

⁶²Hom. *Il.* 22.504; 24.643-5; *Od.* 3.346-53; 4.296-303; 7.335-45; 10.11-2; 19.317-19, 336-42; 20.58, 138-43; 22.196, 23.290; 24.255. Cf. Eub. *fr.* 90 (Kock; ap. Ath. 553B).

⁶³Hom. *h. Ven.* 157-60 (h. 5); *h. Cer.* 196 (Iambe for Demeter).

⁶⁴*Shields:* e.g. Hom. *Il.* 4.447; 5.452; 6.117; 8.61, 322; 12.22, 296, 425-6; 13.163, 406, 803-4; 16.296, 360; 20.276-22.267. *Helmets:* e.g. Hom. *Il.* 3.375; 10.257-9, 261-5. *Shoulder protection:* Hom. *I.* 17.492-3. *String of arrow:* e.g. Hom. *Il.* 4.122.

also made of oxhide (Hom. *Od.* 12.423). Well twisted throngs of oxhide served as a rope on ships to haul up the sail or for 'lasooing' a person and dragging him through the dust, reins and mitts at wrestling competitions.⁶⁵ In gardening, stitched greaves of oxhide were wrapped around body parts to protect them against scratches from brambles and thistles (Hom. *Od.* 24.228-9

Similarly, leather was a crucial material for the production of some musical instruments, notably the drum, tambourine, the chelys-lyre and the barbitos.⁶⁶ In the Homeric period, oxhides were used not only as a covering the soundbox, but also for the kollops, a roll of rough leather the friction from which helped to hold the string in place at the crossbar.⁶⁷ The kollops was made from hide from the necks of oxen, a particularly rough piece of hide (Maas & Snyder 1989, 6). In the classical period, the strings of the chelys-lyre were not only fixed by means of leather wrappings around the crossbar, but also with a more developed construction, which only partly consisted of leather (Maas & Snyder 1989, 98).

The well-sewn skins of smaller animals, such as goats, were commonly used to store and transport wine, water or barley.⁶⁸ Full wineskins were also used as 'gambling equipment', with people dancing upon them, either at the Askolia or symposia. Theopompus stated that the corpses of offenders were wrapped in a hide (ἄσκόζ) and thrown into the sea.⁶⁹ This disposal method was quite unusual and is only reported in connection with oligarchic brutality and tyrannical terror, but the practice of wrapping corpses in hides may have been a more common practice, although it is difficult to say how common this was. Leather scraps served as toys for children, out of which, for instance, a horse and chariot could be built of (Ar. *Nu.* 881). Animal skins were not used by Greeks as writing material (Hdt. 5.58.3). However, Anaxilas writes that magical words were stitched onto little bits of leather (ἐν σκυταπίοις) to ward off evil spirits.⁷⁰

⁶⁵Rope: Hom. *Il.* 22.397; *Od.* 2.426; 12.423; 15.290; *h Ap.* (h. 3) 407, 487, 503. Reins: Hom. *Il.* 23.324. Mitt for wrestling (?): Hom. *Il.* 23.684.

⁶⁶As far as we know, ox-hide trumpets played by Thracian soldiers (Xen. *An.* 7.3.32) were not used by ancient Greeks

⁶⁷Both in Hom. *h.Merc.* 49-50 (h. 4) and in the fragments of Sophokles' satyr play. *Ichneuta*, the construction of the lyre was linked with Hermes' theft of Apollo's cattle.

⁶⁸Wine: e.g. Hom. *Od.* 6.77-8. Wine and water: Hom. *Od.* 5.265-6. Baley meals: e.g. Hom. *Od.* 2.379.

⁶⁹*Hyperbolos*: Theopomp. *Hist. fr.* 96 (FGrHist). *Seducers and harlots during the reign of tyrant Kleomis*: Theopomp. *Hist. fr.* 227 (FGrHist). Cf. III.5.1.

⁷⁰Anaxil. *fr.* 18 (Kock; ap. Ath. 548C) with Gulick 1932, 486-7 note c.

Eustathios, the Byzantine scholiast of the Homeric epics, speculated that the *kollopes*, used for tuning lyres, was so called, because the ancients also boiled κόλλα, glue, from the neck hides from oxen or sheep.⁷¹ Whereas his etymological comments appear speculative and fanciful, his reference to the recycling practice may have been based on reality. Thus, the hides from the necks of oxen or sheep may have served as secondary material for the production of glue.

Bones

The reuse of bones was a widespread practice. Ἀστράγαλοι, the ankle bones of sheep and goats, were widely reused as tools. Children used them, for instance, in the so-called *tropa*, the *artiasmos* and for *pentelitha*.⁷² Adults used *astragaloï* for a variety of games of chance (Fittà 1998, 17, 120-2). There are a couple of images of gamblers playing with ankle bones, most famous of which is the Roman copy of a Hellenistic original of a girl playing with *astragaloï* (cat. 227).⁷³ Herodotos (4.2.1) noted that the Scythians used tubes of long bones, very much like flutes, for milking. Since he found this milking technique extraordinary enough to be mentioned in his account of the Scythians, it may be surmised that it was unknown in Greece.

A variety of bones served as secondary material in manufacturing processes in settlements, as the existence of bone workshops in habitation quarters indicate (e.g. Graeve 1992, 99 (Miletos); B Hürmüzlu pers. comm (Klazomenai)). Dice are said to have been made of ἀστράγαλοι, and *krotala*, which were roughly played in the way castanets are played, were made of bones. They were made of long pieces of bone, wood, or ivory fastened together in pairs.⁷⁴ Gambling implements found in the classical shipwreck at Tektas Burnu were also made of bone (Gibbins 2000). Parts of musical instruments were also made from bone. The cross bar of a kithara as well as the two arms of the soundbox and plectrum of a lyre were often made of bone, as shown by the archaic examples found in the sanctuary of Artemis Orthia Dawkins 1929, pl. 1647A; Maas & Snyder 1989 37 with n. 70, 48 with pl 13d. Other objects made of bone include

⁷¹Eustathios 1915, 7-10, cited in Maas & Snyder 1989, 6, 220 n. 26.

⁷²*Tropa*: Fittà 1998, 12, 17, 30 n. 14. *Artiasmos*: Pl. Ly. 206E; Fittà 1998, 17, 46. *Pentelitha*: Fittà 1998, 16.

⁷³*Hellenistic depictions*: Fittà 1998, 3 n. 46, figs. 17-8.

⁷⁴*Krotala*: Maas & Snyder 1989, 69.

combs, needles, pins, cosmetic instruments, small spoons, handles of knives and swords, tools and toys such as dolls.⁷⁵

Other cultures have used bones as fertiliser and, when crushed, as medicine, but there is no evidence of this in ancient Greece (Hilzheimer 1932-4, 1471, 1480-1). The grease extracted by boiling bones may have served as a basis for soap, when potash was added (Karageorghis & Kassianidou 1999, 183). Bone ash can be used for technical processes, including as a decolouring agent, to deoxidise molten metal, and in the production of cupels, crucibles, and moulds (Karageorghis & Kassianidou 1999, 183). Bone ash can also be used as fuel (Karageorghis & Kassianidou 1999, 183). Whether or not bone ash was produced and used in the above mentioned ways, is not known.

Sinew

Hesiod (*Op.* 543) mentioned that coats made from goat skins were sewn together with sinew from cattle. Apart from as thread, ox sinew was used for the strings of arrows (Hom. *Il.* 4.122). Homer stated that the strings of the phorminx and the chelys-lyre were made of 'well-twisted' sheep-gut.⁷⁶ It is likely that strings were still made of twisted guts in later periods (Maas & Snyder 1989, 203).

Skulls

The skull of an animal with lyrate horns may have been an early form of the chelys-lyre, which was used either in Greece or in countries to which Greeks travelled (Maas & Snyder 1989, 95). The arms of the soundbox shape curve out in a shape reminiscent of antelope horns. Thus, the skull of the forerunner of the chelys-lyre may once have been made of an antelope bukraneon (cf. Hdt. 4.192.1). More importantly, the skulls of sacrificial beasts were nailed onto the walls of houses and perhaps also to decorate public buildings, if the stone bukrania on the walls of public buildings do indeed replicate a possible former practice of nailing bukrania onto walls.⁷⁷

⁷⁵e.g. cat. 206; Vinogradov & Kryzickij 1995, 76, 103, 106 pl. 77.2-4.

⁷⁶*Phorminx*: Hom. *Od.* 21.408. *Chelys-lyra*: Hom. *h.Merc.* 50-1.

⁷⁷E.g. the metopes of the frieze of the proskenion of the theatre at Delos, built in the third century B.C., were decorated alternately with tripods and bukrania.

Horns

Horns were recycled in a number of ways. Ox horns appear to have been reused as fishing equipment in the Homeric period (Hom. *Od.* 12.252-4). The *rhyton*, a clay drinking vessel shaped like a horn imitates the use of horns as drinking vessels from an earlier period (X. *Anab.* 7.2.23). Horn was also used in to make musical instruments. The mouthpiece of wind instruments was often made of horn (Ath. 184A). Euripides noted that the kithara was played with a plektron made of horn and a fifth-century fragment refers to the gold-covered horn of a lyre, which may mean that the arm was made from horn.⁷⁸ Warrior's equipment was also fashioned from horn. Thus, bows were termed κεραιοξός.⁷⁹ It is not entirely clear which part of the helmet worn by the Homeric heroes was denoted φάλος; it was either a ridge on the crown in which the plume was fixed or a horn.⁸⁰ The grinding of horn as an aphrodisiac, well documented for China (Hilzheimer 1932-4, 1487), was not practised in ancient Greece.

Blood

The average ox contains c. two gallons of blood and it is possible that some blood was used. A passage by Pausanias (10.36.2) seems to imply that blood was used to dye wool. It is also possible that blood was used in preparing blood sausages.⁸¹

IV.3.3 Human bones

The recycling of human skeletons within settlements was rare and restricted to myth. One case is documented in one of the accounts of how Achilles became immortal.⁸² When Thetis burnt Achilles, as she did her six previous sons, his father Peleus snatched him from the fire when only his anklebones had been burnt. To supply the missing section, Peleus dug up the skeleton of the giant Damysos, extracted the anklebone and implanted it in the ankle of his little son Achilles.

⁷⁸Plektron E. I n 881 2 Cf Pl. *Lg.* 7.795A. *Arm.* S. fr. 244, perhaps also Hom. *h.Merc.* 50 and Hdt. 4 192, but not E. *Ion* 88 (cry of the kithara Muses amidst lifeless horns...) according to Maas & Snyder 1989, 227 n. 51. *Animal horns in other cultures:* Hdt. 4.192.1 (Libyans used antelope horns).

⁷⁹Bow: Hom. *Il.* 4.105-6 (wild ibex); E. *Rh.* 32.

⁸Ridge: Hom. *Il.* 4 459; 6.9; 13 614; 16.338. *Horn:* Hom. *Il.* 3.362; 4.109-10.

⁸¹Rome: Scobie 1986, 421.

⁸²Ptolemy Hephaest Nov. Hist IV.

IV.3.4 Organic waste

Provisionally discarded organic wastes derive from different activities and include a wide range of substances, such as urine, tanner's waste, human and animal faeces, sweepings (συρμάς), ash and agricultural by-products (e.g. chaff (ἄχυρα), straw, extracted weeds, and ῥῖα (bean and other legume stalk)). Discarded organic waste could be recycled for free, if internally recycled. Externally recycled waste, by contrast, had to be purchased.⁸³ These recyclables were used for a wide range of purposes in realms as different as agriculture and medicine. I shall now focus the discussion on recycling practices of organic matter according to realms, including the agricultural, the pastoral, the technical, the household, and the medical. This will allow for the description of different kinds of fertilising agents and emphasise the importance of 'green manure' in the works of Xenophon as an additional and alternative fertiliser to animal dung.

Agriculture

In the mythical past of Hesiod's Golden Age, and the early stage of the natural environment of ancient Athens, before the regular cataclysmic floods according to Kritias, the land was verdant, offering its fruits in abundance and providing the setting for an ideal human life.⁸⁴ At this time, agriculture was not required. In the course of the time, however, agriculture became necessary to guarantee the survival of mankind. Different strategies and techniques were developed to ensure or increase the output of agricultural products or improve their quality or taste. The rôle which different organic waste matters could play in these manipulating processes, is documented in two late-classical works, namely the agricultural treatises of Xenophon and the agro-botanical treatise of Theophrastos. The lists of possible applications may not have been practised by all farmers at all times, but they allow us to gain insight into the properties various organic recyclables were thought to have had.

Compared to Roman farmers, Greek farmers seem to have less efficiently exploited organic de facto waste.⁸⁵ Ash, for example, was applied to fig trees and

⁸³*Kopros as valued commodity*: cf app D, s v. settlements (*koprologoi*); II.1.6 (dung-hill or privy as security); IV.1.7 (*koprologi*). Cf. Buck 1983, 20-30 (Italy). *Chaff*: IG II² 1 72.196-7 (329 8 B.C.); IG II² 422 85 (415 4 B.C.); Pritchett 1956, 183; Foxhall 1998a, 35-6. *Straw*: Foxhall 1998a, 39. *ῥῖα*: IG II² 422 85 (415 4 B.C.); Pritchett 1956, 182, 185; Foxhall 1998, 35-6.

⁸⁴Hes. *Op.* 129-47; Pl. *Crati.* 110E-111A. Cf. Goldin 1997, 76-7.

⁸⁵Roman farmers recycled, for instance, organic waste for killing moss on meadows (Col. 2 17.2; Pall. 10.10.3), preventing late fruits from dropping (Plin. *NH* 17.259; Geop.

rued to protect them from worms, whereas organic waste was applied to figs in order to prevent them from rotting.⁸⁶ Organic waste also was held to improve the quality and taste of fruits and vegetables, in particular cabbage, almonds and pomegranates.⁸⁷ In addition, vegetable matter was used for sealing and protecting grafts (X. *Oec.* 19.13). Moreover, softer stones in fruits were obtained by manuring fruit trees with *kopros*. Finally, organic matter was used for manuring soil in general and for lentils, kitchen herbs, trees, vines, vegetables, and crops, in particular.⁸⁸ Fertilisation is by far the best documented agricultural technique and can be traced back to the Homeric Age (Hom. *Od.* 17.296-9). In Theophrastos' opinion, the effects of fertilisation included promoting the process of ripening and increasing the size of grapes.⁸⁹ These visible effects were brought about, partly by loosening, warming up and nourishing the earth, and partly by making the food for plants more digestible.⁹⁰ The modern insight that fertilisation also increased the amount of water the soil could retain (Olck 1905, 1758; Alcock *et al* 1994, 145), was not mentioned by pre-Hellenistic farmers, but should not be ignored as a possible benefit (either known or unknown by the ancient Greek farmers).

Greek farmers have utilised a variety of recyclable substances as fertiliser, including 'green manure', different soil types, ash, fresh, rotted and dried animal dung, human faeces, sweepings, and by-products of the tanning process.⁹¹ Once

10.48.4, 55), strengthening ill trees (Pall. 3.25.23; 4.10.3; Geop. 9.10.8), improving the ease with which beans can be cooked (Verg. *Geog.* 1.194; Plin. *NH* 18.157), and fighting fog (Pall. 1.35.1). Cf. Olck 1905, 1772-6.

⁸⁶Worms: Thphr. *CP* 3 17.1 (figs); 5.6.10 (rue). *Rotting*: Thphr. *CP* 3.17.1.

⁸⁷Sweet almonds: Thphr. *CP* 3.9.3. *Sweet and seedless pomegranates*: Thphr. *CP* 2.14.2; 3.9.3. *Sweet and delicate cabbage*: Thphr. *CP* 2.5.3. Cf. the result of dust on cucumber (Thphr. *CP* 3.16.3) and vine (Thphr. *HP* 2.7.5) and of sheep dung on tobacco in 19th-century Turkey (Honcamp 1938, 2189 n. 1).

⁸⁸Soil: X. *Oec.* 20.3 (τῆ γῆ κόπρον μινύναι). *Lentils*: Thphr. *HP* 2.4.2; *CP* 5 6 11. *Kitchen herbs*: Thphr. *CP* 3 9.2; *HP* 7.5.1. *Trees*: Thphr. *CP* 3.9.2.5; 3.7.8; 3.9.1; *HP* 2.7.3; *IG* XII 7.62. *Vine*: e.g. Thphr. *CP* 3.9.5. *Vegetables*: Thphr. *HP* 7.5.1. *Crops*: Thphr. *HP* 8 6.3; X. *Oec.* 20.4.

⁸⁹Thphr. *HP* 2.7.5. Cf. Thphr. *CP* 3.16.3; Plin. *NH* 17.49; Geop. 3.13.3; Honcamp 1938, 2206-7.

⁹⁰Earth: Thphr. *CP* 3.6.1 (loosen); 3.10.2 (nourish); *HP* 8.7 7 (warming). *Plant*: Thphr. *HP* 8 7.7.

⁹¹*Rotted p eces*: Schol. on Lucian cited in Detienne 1989, 244 n. 33. Cf. Burkert 1972, 284 n. 5; Kron 1992a, 616 n. 24; Straten 1995, 7-8); III.1.7. *Green manure*: Thphr. *CP* 2.18.1; X. *Oec.* 16.12; 17.10; Thphr. *HP* 8 9.1. *Mixing soil types with minerals*: Thphr. *CP* 3.20.3. *Ash/stubble burning*: X. *Oec.* 18.2; Thphr. *CP* 3.21 4 5 6 10; Ps.-Arist. *Probl.* 20.18. *Fresh animal dung*: e.g. *IG* V 2.3; Thphr. *HP* 8 6 3. *Rotted animal dung*: Sokolowski 1969, no. 67.27-30. *Dried animal dung*: Thphr. *HP* 2.4.2, *CP* 5.6 11. *Human faeces*: Thphr. *CP* 3.9.2; *HP* 2.7.4; 7.5.1. *Sweepings*: Thphr. *HP* 7.5.1. *Tanner's manure*: Ar. *Pax* 162; Thphr. *CP* 3.9.3; 5.15.2.

a year, manure was also provided by sanctuaries of Demeter and Kore, which consisted of grain and the remains of rotted carcasses of pigs (cf. III.1.7). Types of excreta regarded as manure included that of humans, swine, goat, sheep, ox and equids. They were of differential quality and efficiency as fertiliser. Whereas human faeces were classified as extremely strong, excrement of oxen and equids was regarded as weak manure.⁹² This ranking could reflect the Greek belief that humans are the highest ranking animal with rationalising abilities, but even modern research has shown that human faeces are extremely strong (Honcamp 1938, 2211). Not all kinds of manure were good for all plants, at all occasions and all soil types. Thus, Theophrastos took great care in listing which kind of fertiliser matches which soil type and which plant for which occasions at which frequency for ideal results. For example, Theophrastos suggested that the dung of horses or mules should be applied to vine and freshly planted trees, but that cow dung should only be applied after pruning.⁹³

Other types of manure, including pigeon's dung and by-products of the production of olive oil, which Roman farmers used quite extensively, have not been mentioned as fertiliser.⁹⁴ The same is true for by-products of slaughter activities such as blood, the content of intestines, as well as animal carcass and fish remains, which European farmers earlier this century used when manuring their fields.⁹⁵ This, however, does not necessarily exclude their use as fertiliser in ancient Greece, since different farmers seem to have used different substance as manure.⁹⁶ These preferences were most likely related, among other factors, to the social and economic status of the farmers, the size and kind of the holdings, the amount of land under cultivation and the methods of cultivation as well as local husbandry traditions (Alcock *et al* 1994, 148). In addition, the choice of manure could vary through time for one particular farming family, depending on changes in the family composition, available labour, livestock and modes of cultivation. More specifically, it is likely that in regions of large-scale production of olive oil, such as in the *deme* 'Αττήνη and perhaps in the southern

⁹²Thphr. *HP* 2.7.4 (quoting Chartodras). Cf. Varro 1.38; Col. 2.15.

⁹³*Vine/trees*: e.g. Thphr. *CP* 3.9.5. *Almonds & pomegranate*: e.g. Thphr. *CP* 3.9.3. *Prunes*: e.g. Thphr. *CP* 3.7.8.

⁹⁴*Pigeon's dung*: Col. 11.2.87. *Olive cakes*: Cat. 37.1.2. *Olive stones*: Cat. 37.2. *Amurca*: Col. 2 14.3; 5.9.16; Plin. *NH* 17.259, 265; 18.157. Cf. Blummer 1875, 345 with ns 2-3

⁹⁵*Blood*: Ostertag 1938, 2214. *Intestines*: Ostertag 1938, 2213. *Carcass and fish remains*: Pax 1938, 2080.

⁹⁶Xenophon (*Oec.* 19.13), for example preferred 'green manure', whereas Columella (2.2.42) favoured a mixture of dung and ashes.

Argolid farmers used by-products of the production of olive oil or mixtures of vegetable matters as manure.⁹⁷

As variable as the nature of fertilising agents were the manuring techniques. On the basis of literary, archaeological and ethnoarchaeological evidence, two ways of manuring crops and other useful plants may be distinguished: manuring the fields with substances brought from the *oikos* and on-field or direct manuring. The former may be achieved by collecting animal manure and household waste from collecting facilities, such as dung-hills, cesspools, and puddles, or by buying fertiliser from the *koprologoi* or sewage suppliers, and transporting it to be spread on the fields.

On-field manuring may be achieved by draught animals while ploughing the fields, animals grazing the fallow or in stubble or goats stripping off the leaves of residues from pruning olive trees heaped up.⁹⁸ Any manure deposited in this way is beneficial, although many nutrients are lost if dung is merely deposited on a field's or orchard's surface rather than being ploughed in. Convenient fertiliser was also provided by vegetal waste (κόπρος) from the fields. Three kinds of vegetal waste can be distinguished in Xenophon's *Oikonomikos*: green shoot from the seed and fallow which were ploughed under as 'green manure', burnt stubble and weeds soaked in water.⁹⁹ Whereas the first two waste products were immediately ready for recycling, the weeds had to undergo a transformation process before they could be used for manuring the soil.

Literary and epigraphical sources create the impression that fertilising was considered an important practice and that it was undertaken regularly and extensively.¹⁰⁰ Xenophon (*Oec.* 20.4), for instance, considered fertilising as

⁹⁷*Atene*: Lohmann 1992, 29, 42, 59. *Argolid*: Andel & Runnels 1987, *contra*: Acheson 1997.

⁹⁸Draught animals in the field: e.g. *Hom. Il.* 18.542-49; *Od.* 13.31-4. *Modern Greek practices*: Jameson *et al* 1994, 276, 281.

⁹⁹*Green shoot from the seed, not poor cereal as Foxhall 1998a, 36 suggested*: *X. Oec.* 17.10. *Fallow*: *X. Oec.* 16.12. Cf. *Thphr. HP* 8.9.1; Jameson *et al* 1994, 266, 281; Foxhall 1998a, 36. *Burnt stubble*: *X. Oec.* 18.2. The practice of burning the stubble instead of ploughing it under may have resulted from the insight that crop residues alone can replace only a small fraction of the organic matter lost as a result from cultivation and that it requires for its decomposition a supplementary source of nitrogen (Tivy 1990, 67, 70). *Weeds soaked in water*: *X. Oec.* 20.11.

¹⁰⁰*Ar. Ach.* 1025-6; *Lys.* 1174; Sokolowski 1969, no. 115 (Thasos, Garden of Herakles, fourth century B.C.); no. 116, 5-20 (Chios, fourth century B.C.); *X. Eq.* 5.3 (littered manure was brought εἰς ἐν χωρίον).

crucial an agricultural technique as sowing. He (*Oec.* 20.3; 20.10) stated that failing to fertilise results in not being able to harvest and thus in ruining the estate. Until recently, the archaeological evidence of off-site sherd scatter (haloes) has been taken to support the general impression created by literary sources that fertiliser mixed with cultural inclusions had been applied to the fields extensively by Greek farmers.¹⁰¹ In 1994, Alcock *et al*, however, argued, that for all the literary interest in manuring, the degree to which it contributed to Greek agriculture was limited. Their critique was divided into a practical and a theoretical argument. On the practical level, they argued that the dung collected over a year - even when mixed with cultural detritus - would not be sufficient to manure the fields of a small farms. Therefore, Alcock *et al* (1994, 156) concluded that it is 'unrealistic' to maintain the point of view that *kopros* was used 'to improve agricultural yields wherever possible'. The main obstacle in this argument is the fact that they used manuring rates of modern Italian farmers and I would be surprised if the manuring rate in ancient Greece was as high as that in modern times. On a methodological level, the authors have called into question Bintliff and Snodgrass' (1988, 508) hypothesis that manuring was the chief factor behind the genesis of off-site artefacts distribution by stressing the importance of alternative explanations for off-site artefacts, including other agricultural practices, loss and breakage by shepherds, waste disposal processes and natural transformation processes. While I agree with Alcock *et al* that the manuring was in any case lower than the distribution of artefacts, I doubt that alternative processes to manuring played a significant rôle in the distribution of potsherds.

In my opinion, more important for the identification of the extent to which ancient Greeks manured their fields is the question which manuring practices played in ancient Greece, which would not leave any archaeological traces, such as 'green manure'. Green manure appears to have been an ideal solution for the conflict created by the scarcity of animal dung on the one hand and the recognition that manuring was necessary for good agricultural results. Green manure would have been particularly suitable for outfields far away from the sources of animal dung collected at the estate. It is, however, difficult to say how many farmers actually made use of the convenient manure. Xenophon (*Oec.* 20.10) criticised his fellow farmers for their laziness in this matter, but this does

¹ ¹ *Halo'*: Bintliff & Snodgrass 1985, 131; 1988; Bintliff 1985, 201-2; Snodgrass 1987, 113-7.

not say anything about the number of farmers using this sort of manure and the extent to which they made use of it. The use of green manure as complementary manure to animal dung is an hypothesis and would need to be tested by chemical analyses of the soil, namely by studying the nutrients that fertilisers add to the soil, especially phosphorus, nitrogen, and potassium.¹⁰² Much basic research is still needed on aspects of soil analyses, before it will be possible to claim that manuring processes are properly recognised and understood. However, in most cases in which both phosphate concentrations and fields scatter densities have been measured, soil phosphate analysis yields only a weak correlation with sherd scatters.¹⁰³ Notable are the results of the archaeological survey of farmstead sites in Laconia, where they found that the high phosphate concentration covered a larger area than the sherd scatter of a site (Cavanagh *et al* 1996, 235-40). Phosphate data needs to be interpreted with care, since soil phosphates derive from a complex of different sources and interact in a variety of ways with various soils (Wilkinson 1990a, 94).

Pastoral realm

It is generally assumed that the flock sizes of most Greek farmers were quite modest due to a lack of pasture land.¹⁰⁴ Consequently, agricultural residues such as olive pruning and grain stubble and chaff are held to have provided critical components of any livestock, as they still do nowadays, when alternative fodder sources are available (e.g. Koster 1997, 141-2).

Medicine

Interestingly, organic wastes did not play a major rôle in pre-Hellenistic veterinary medicine, but in the *Corpus Hippocraticum*.¹⁰⁵ More specifically, urine and animal dung were exclusively prescribed against diseases of women. Urine was administered in case of haemorrhoids and fistulae. A typical prescription consisted, among other ingredients, of animal dung and occasionally urine, if abortion of a dead foetus was to be brought about or if sterility, fetid vaginal emissions, dropsy in the womb or gas in the uterus had to be fought.

¹⁰² *Methodology*: Miller & Gleason 1994, 26, 27-39; Cavanagh *et al* 1996, 237-40; Millard & Rimmington 1998.

¹⁰³ e.g. Wilkinson 1990a; b, 73-8; Cavanagh *et al* 1996, 235-61.

¹⁰⁴ Alcock *et al* 1994, 153 (with references); Foxhall 1998a, 39.

¹⁰⁵ *Veterinary medicine*: Olck 1905, 1775. *Human medicine*: Staden 1991, 43 n. 4 (all examples discussed in the text are cited in his article). *Other cultures*: Eisentraut 1938, 2231-5.

The medicine was applied directly to the locus of disease via pessaries or fumigation or through the mouth, since the female body was regarded as a hollow tube connecting two orifices and affording the womb passage from the bottom of the body to the top (cf. II.3.3).

The idea behind prescribing dirty substances for diseases related directly or indirectly to the uterus, Staden argued, was homeopathic. The treatment of the same with the same is based on the understanding of the uterus and more generally of woman as dirty and polluting.¹⁰⁶ The range of primary and secondary literature he listed in support of his hypothesis is impressive. Yet, they do not support his preliminary hypothesis that women used to be considered dirty: Menstruation was not considered a cause of pollution, Dean-Jones (1994, 243-7) argued convincingly and references to dirt in connection with the female sex are restricted to certain circumstances and occasions, including being unwashed (Semon. *fr.* 7 (West; app. D)) or after having given birth (Parker 1996, 48-73). If women and their reproductive system were not generally considered dirty, Staden's innovative homeopathic approach has to be dismissed. The key for a more convincing explanation of the phenomenon of prescribing animal dung for diseases related directly or indirectly to the reproductive system of women lies, I think, in the ancient Greek understanding of the powers inherent in organic wastes, in particular in animal dung (King 1995b, 147 n. 26). It is remarkable that animal dung, in particular cow dung, was not only administered in case of diseases threatening in one way or another the fertility of woman, but also applied to plants to increase their fertility. This observation has two implications. Animal dung was regarded the appropriate substance for stimulating and guaranteeing fertility crucial for the existence of families and *poleis*. Second, and more important, there was a link between the earth's fertility and the fecundity of women. This link was widely accepted, not only by men, but also by women.¹⁰⁷ To conclude, animal dung was prescribed when malfunctions of the female reproductive system occurred which threatened the existence of a particular family or, if occurring on a large scale even the *polis*, because animal dung was linked to fertility. As different kinds of diseases were

¹⁰⁶Staden 1991, 49, 55 (uterus), 60, 1992.

¹ *Agricultural terminology for female sexual organs*: Henderson 1975, 134-6 no. 122-39 esp. κῆπος (garden) and λειμών (meadow). *Agricultural terminology and sexual intercourse*: Diedrich 1997, 47-8; Henderson 1975, 166-9 no. 279-95 Cf Kron 1992a, 635, 637. *Earth's and human fertility*: Friedrich 1978, 157; DuBois 1988. *Women*: Winkler 1994, esp. 299.

cured by different kinds of animal dung, sometimes as fancy as falcon's droppings, it would be worth investigating in how far characteristics attributed to animals were thought of as being still inherent in the excrement of the particular animal.

Technical realm

Chaff and straw were used for and in a variety of manufacturing processes. Chaff (ἄχυρα; κάρφρα) or straw, for example, were mixed into mud (πηλός) as temper for building material. Whereas the usage of chaff is securely documented only for the classical period, straw was used for Dark Age buildings.¹⁰⁸ Straw was perhaps also intentionally used on the floors of houses at Halieis and elsewhere as resurfacing material of earthen floors; it would have helped prevent its cracking and thus would have been used as a stabiliser (Ault 1994a, 77 n. 25). Whether chaff and straw were also used as fuel for gold-parting processes, as it is documented for the Roman and Babylonian culture (Craddock 2000, 35) is not known.

Other organic recyclables served other functions. Theophrastos (*HP* 5.5.6), for example, recommended applying cattle dung to timber, in particular to pieces intended as doorframes, to avoid splitting during the drying process. In addition, urine may have served for fulling, tanning and mordanting and dung for bating, even though it is not documented in the literature for the pre-Hellenistic period. It is not clear whether tanneries made as efficient use of the content of terracotta urns distributed all over the city as Roman laundries (Blümner 1875, 163 with n. 3; Eisentraut 1938, 2228.). Ancient Greeks may have also used olive press cakes, which were rich in oil, for fuel for potter's kilns as it has been done in the recent past in Messenia or for olive oil processing, which demanded large amounts of hot water, for which fuel would be needed.¹⁰⁹ Furthermore, cut brambles served as a kind of barbed wire, whereas φορυτός (sawdust, chaff or straw) was considered suitable for packing material.¹¹⁰ Moreover, it is possible that the practice of using walnut hulls as dyeing implements for wool, which was a standard practice before the introduction of commercial dyes, goes back to antiquity (Koster 1976; Jameson *et al* 1994, 309).

¹⁰⁸ Chaff: Foxhall 1998a, 36. Straw: Coulton 1988, 277.

¹⁰⁹ Potters' kilns: Matson 1972, 219; Foxhall 1998a, 38. Water: Foxhall 1998a, 39.

¹¹⁰ Bramble: Hom. *Od.* 14.10. Cf Richter 1968, H28. Φορυτός as sawdust in *Ar. Ach.* 927-8: Henderson 1998a.

Household

Straw, fallen leaves and brushwood were reutilised as a provisional open-air bed for example, by the shipwrecked Odysseus deprived of all his possessions and as provisional seats, for instance, by the swineherd Eumaios when he needed an extra seat for his guest.¹¹¹ In particular in the Homeric Age, beds made of organic material without bright coverlets for bedding signified low social status (cf. app. B). It is generally assumed that there was a shortage of firewood in ancient Greece and that recyclables filled the gap. Forbes (1997, 200), for example, calculated that a household in the lowland of Peloponnesos would have used a total of six tons of fuel a year, out of which he thought that as much as five tons must have come from organic waste and wood deriving from the uncultivated countryside. If waste wood from sanctuaries was recycled, as in Gortyn, inter-contextual recycling occurred (cf. IV.2.4).

IV.3.5 Waste water

Crouch (1993, 28, 166) believes that water was rare and precious in ancient Greece and that it was, therefore, carefully managed. Strategies ensuring that enough water was available at all times included the development of an elaborate system of fresh water supply, relying on several different sources (e.g. rain, cisterns, wells), and the use of different qualities of water for different purposes and activities (e.g. drinking water only for consumption and not for bathing; Crouch 1993, 284, 287, 314). Another consisted of using the same water more than once. Crouch (1993, 27-9) assumed that the ancient Greeks used all kinds of water at least twice: bathing and cleaning water (πλύμα) was used to flush toilets, clean or sprinkling the house-floors, water the flowers, quench domestic animals (if it was not enriched with potash);¹ ² rushing water from storms to flush public sewers and even to irrigate crops and trees near the city (Alcock *et al* 1994); collecting the overflow of a spring to clean clothes and irrigate the fields. If bathing water was indeed used for flushing private water-closets, the internal recycling of bathing water for flushing the latrines of public Roman baths had a domestic origin (Crouch 1993, 28). We can add to this list a passage from Hesiod's *Works and Days* 753-5, cf. app. G.3), which gives evidence that bathing

¹¹¹e.g. Hom. *Od.* 5.483-91; 7.285-6; 11.194; 14.49.

¹¹²*Bathrooms without drainage*: e.g. Ginouvès 1962 pls. 16-7; Weber 1996, 18.

water was used by more than one family member in archaic Boeotian households, although in a prescribed order.¹¹³

The degree to which multiple and/or internal recycling of water took place in ancient Greece is not known, and, as such, the recycling rate can only be estimated. In my view, Crouch has exaggerated the degree to which water was recycled. It is doubtful that water was recycled to the same extent at all places and at all times. We can assume that water was used more lavishly in places with a good water supply system than in those with an insecure supply. In general, we can guess that people living in cities used water less thoroughly than people living in single farmsteads far from urban centres. However, people living in *poleis* such as Priene, which had no cisterns in the city itself, and at Olynthos, where there were only a few, probably managed water more carefully than people living in *poleis* with a reliable water supply system, such as Athens from the 6th century B.C.¹¹⁴ Water consumption patterns may have varied from season to season, in particular in places with unfavourable fresh water supply. Water was probably used more thriftily from winter to mid-summer, (when it was unclear whether or not the water store would last over the summer,) than in early autumn, when the rainy season started.

The fact that rain water was drained from houses and not collected for reuse, and that modern Greeks still use water lavishly even in times of water shortage case doubts as to how efficiently water was used in antiquity.¹¹⁵ It also has to be kept in mind that the sewage systems were primarily installed to protect cities from the damage caused by heavy rainfalls. Thus, they are not so much indicative for a thorough use of water, but rather for the effort to protect buildings.

¹¹³Ginouvès (1962, 265 n. 1) followed Proclus, the commentator of the Late Roman Empire, and interpreted this passage in terms of the protection of men from contamination by menstrual blood by associating ἐπὶ χρόνον with the period when bathing in the same water as a woman should be avoided, not with the period of the punishment (Dean-Jones 1994, 230). The time aspect is not, however, clearly linked to the punishment. This interpretation is supported by the fact that Hesiod does not mention at all strictures controlling the behaviour of menstruating woman. Considering the entire Hesiodic catalogue of rules, it is more convincing to interpret this rule with Parker (1996, 293) in terms of partition - with not confounding the male and the female.

¹¹⁴*Priene and Olynthos*: Carr ll-Spillecke 1989, 82.

¹¹⁵*Drainage systems in oikoi*: Webster 1969, 29, Crouch 19 3, 296-303.

IV.3.6 Summary

A wide range of activities took place within, or were associated with, settlements, including agriculture and manufacturing processes. Potsherds, bones, hides, excrement and waste water seem to have been recycled to a high extent. The recycling rates of κόπρος and waste water probably subject to seasonal variation. Whilst there was a high recycling rate for dung as manure in autumn, the recycling of water was at its peak during the summer.

IV.4 AGORAI

The categories of material culture discussed in relation to recycling in Greek *agorai* are the same as those discussed for settlements, except for water and organic wastes. These substances are substituted by more solid categories, namely places and graves. The analysis of the reutilisation of places such as *agorai* includes a brief comparison with the conversion of land into sacred land, whilst the discussion of the reuse of graves in *agorai* provides the basis for a comparison with the reuse of graves in cemeteries (IV.5.4).

IV.4.1 Potsherds

Some methods for the recycling of potsherds were not limited to sanctuaries and settlements, but were also practised in *agorai*. The potters working in *agora* workshops most likely reprocessed sherds in the same way as those working in sanctuary and settlement workshops. As in other contexts, potsherds have often been found in construction and levelling fills. In the Athenian *agora*, extensive *de facto* recycling (and disposal) practices of potsherds occurred after the Persian invasions of 480 and 479 B.C. and the earthquake of 426 B.C.¹¹⁶ Some of these fills resulted from the reshaping and rearranging of a section of the *agora*, such as cat. 98, for the construction of the Stoa of Zeus after 426 B.C.¹¹⁷

Other recycling practices include the use of potsherds as stoppers for the hand holes of archaic pipes in the classical period (cat. 191). Lang (1968, on fig. 6) pointed out, in connection with the wells of the Athenian *agora*, that the mouths of wells prior to the sixth century B.C. were often made from the neck and

¹¹⁶*Persian debris*: Shear 1993. *Earthquake*: Rotroff & Oakley 1992, 54-7

¹¹⁷*(Re-)building activities after 426 B.C. because of earthquake*: Rotroff & Oakley 1992, 57 n. 35. *Contra*: Mikalson 1984; Miles 1989, 227-35.

shoulders of broken *pithoi* (cat. 295B). The size of the *pithoi* probably made its fragments ideal building material for well-mouths. It might, however, also have been the case that the similar function of *pithoi* and wells played a rôle in the use of *pithoi* fragments to construct the well-mouth.

So-called roundels, made from sherds, have been found in the Athenian *agora* (cat. 191) and in many other contexts, such as the West gate *heroon* (Antonaccio 1995, 123 n. 466). Their find spots suggest that they were related to the cult of the dead, though the exact function of the majority of them is still unclear. The example inscribed Οέθεν ἄθλα was surely used at funerary games and it is possible that other, non-inscribed disks had a similar function (Roller 1981, cf. Antonaccio 1995, 126). As the size of most cut disks fits the mouth of a large vessel, some may have functioned as stoppers, perhaps for dedicatory vases (Burr 1933, 603). Their specific shape has also led to the interpretation that they were used as game counters (Burr 1933, 603).

A recycling practice very specific to the *agora* was the reuse of potsherds as *ostraka* in the *ostrakophoriai* of Athens, Argos, Megara and Miletos. I will discuss two little-explored aspects of ostracism, which may shed light on the general operation of the institution: were the kind, quality and appearance of the writing materials of relevance for the process of ostracism? Did individual voters and 'professionals' pick up sherds and scratch the name of their 'candidate' on them?

In relation to the first question, it has long been appreciated that the known ballots were made from all kinds of terracotta objects, and in particular sherds. Ancient voters converted an almost limitless variety of potsherds, and also pieces of lamps, roof tiles, water pipes, and well-heads into ballots (e.g. Lang 1990, 8). Among the known potsherds, those of *lekanai* had a very high recycling rate, and as many as 23% of the *ostraka* were inscribed on fragments of *lekanai* (Sparkes & Talcott 1970, 211)

In accordance with moderate calculations at least 76% of the cast ballots have not been excavated and most of the known *ostraka* appear to originate from the early phase of bouleutic ostracism¹¹⁸ Consequently, it could be argued that the

¹¹⁸I have based my calculation on the nine attested *ostrakophoriai* and interpreted the textually documented number of 6 000 *ostraka* as the *quorum* required for an *ostrakophoria*

missing votes consisted of perishable materials such as leaves or metal scraps, which were later recycled or destroyed. This seems unlikely, since sherds are stated as the main material by various ancient authors and no metal ballot has survived. Terracotta is widely used as a widespread writing material for many informal inscriptions, including dedicatory inscriptions and graffiti. Moreover, the sheer number of potsherds available for any one occasion, their ubiquitous presence and their low economic value made them cheap and handy writing material and most appropriate for mass recycling practices in impeachment proceedings.

Voters were little concerned with the quality and appearance of their ballots. This general observation is certainly true for the majority of recyclable objects found at the *agora* of Athens, which consisted to a large extent of misfired sherds, probably potter's throwaways, coarse as well as fine ware, and sherds of every possible shape (e.g. Lang 1990, 8, 142). There are, however, some ballots, which may suggest that some voters carefully selected their ballots. Cases in which voters invested labour and effort in re-shaping votes are much rarer. In fact, there is only one ballot, which may have been reshaped to serve its new function (cat. 245). Cases, which I will discuss in relation to a concern for appearance and careful selection include the Themistokles *ostraka* found in the *ostrakon*-deposit at the North slope of the Athenian Akropolis (cat. 82), the Kallixenos *ostrakon* (cat. 243), and two Megakles *ostraka* (cat. 241-2). The remarkable consistency in quality and uniformity in shape of the anti-Themistokles *ostraka* was already noted by Lang, but she explained them as the result of an accident by a potter which involved 'such breakage in a batch of *kylikes* and *skyphoi* that only the bases were salvageable.'¹¹⁹ It is possible that the selection and recycling processes were dependent on the kind of material available. It is also possible, however, to interpret the uniformity of the anti-Themistokles *ostraka* in terms of an intentional selection and as a visible statement on the uniformity of the anti-Themistokles faction.

In the case of the Kallixenos *ostrakon*, there is a controversy as to whether it had been painted and fired by a craftsman demonstrating his skill or whether it

and not the amount of votes needed for ostracizing somebody (cf. Lang 1990, 2; Philipps 1990, 137). Since *ostraka* do not seem to have been reused, the figure of 45,000 ballots represents the minimum number of *ostraka* produced.

¹¹⁹122 *kylix* bases, 10 *skyphos* bases, 26 small bowls, and 32 small sherds were used as ballots (Lang 1990, 142). *Accident*: Lang 1990, 158.

documents an act of careful selection and recycling, possibly of a *kalos*-inscription (Stamires & Vanderpool 1950, 379-81). I consider the latter explanation more plausible, as the former involves an unusual writing method which in my view required too much effort for a disposable object. In addition, the recycling of a *kalos* inscription is otherwise attested (cat. 241). I interpret and understand both recycling practices as explanatory statements of voters on the choice of their candidates. These statements were not made by means of words and images, as in fourteen other cases, but by means of recycling a specific part of a vessel.¹²⁰

Another example of a symbolically informed recycling practice may be the two Megakles *ostraka* from a vessel which originally represented satyrs (cat. 241-2). If the satyr motif was indeed deliberately chosen, it was probably used metaphorically to characterise Megakles as a pervertor of common values, alluding either to the Kylonic sacrilege or (more likely in the case of the *ostrakon* with the *kalos* inscription) to recent political misbehaviour.¹²¹

Why did voters at *ostrakophoriai* use potsherds and other recyclable objects? At first sight, it seems reasonable to explain the preference for recyclable objects with the process of writing. A significant number of private notes, such as shopping lists and messages, as well as formal inscriptions were written upon all kinds of recyclable objects. More specifically, informal messages such as expressions of love and hate, errands (cat. 223, 295), instructions (cat. 244, 235, 237), lists (cat. 239), abecedaria (cat. 238) and numerical notations (cat. 236) were for the most part written on potsherds, which were used as we use scrap paper. Sometimes potsherds were recut into a round shape, before they were inscribed. Informal and formal messages, including *horos* inscriptions, could be written on other kind of recyclable objects such as a section of a marble bowl, marble *stelai* or tripod legs (cat. 231) and architectural elements (cat. 201).¹²²

¹²⁰This group consists of twelve Kallias Kratiou *ostraka*, of which eleven characterised him as 'the Persian' (2) or someone who came from Persia (ἐκ Μήδων); one depicted Kallias in Persian attire (Ervin 1967, 25; Daux 1968, 732; Bicknell 1972, 97; Thomsen 1972, 97; Williams 1978, 105-6; Thomas 1989, 30-1); one Kallixenos *ostrakon* on which he was called traitor ([ὁ πρ]οδοτης; Stamires & Vanderpool 1950, 379; Thomsen 1972, 97) and one Krates Athmoneus *ostrakon*, on which he was called φρυσόνδ[α] and which associated him with πονηρία and δημαγωγία (Philipps 1990, 129-31).

¹²¹*Metaphorical representations of satyrs*: Lissarrague 1990b. Cf. II. 3.6.

¹²²*Reused Attic document re-uses*: Lawton 1995, 83-4 no. 4; 89 no. 13; 139 no. 133.

The extensive use of recyclable objects at *ostrakophoriai* could be taken to reflect the preference of information over aesthetics in the ostracizing process. This explanation is, however, unsatisfactory, since it does not take into account that the writing of the name was itself part of the distinguishing nature of ostracism and its specific voting system. Consequently, any explanation of the large scale recycling practices of potsherds as ballots would need to focus on the specific features of ostracism and the peculiarities of its voting system. These features include the variability of candidates from one *ostrakophoria* to the next and on the irregularity of their occurrence. This made the ballots disposable objects, which, as in the case of the Adonia, were not worth much investment.

The irregularity and the change of candidates were probably the main factors why specially designed voting implements were not used at impeachment proceedings.¹²³ It is, however, less obvious why voters could be bothered at all with recycling and inscribing their ballots at Athens, Argos, Megara and Miletos and with writing on olive leaves (πέταλα) at Syracuse. The 'candidate' could have been determined in a much easier and practicable way, for example, by labelling different spots at the *agora* with the names of the 'candidates', so that the voters would only have to drop a pebble or another object at the appropriate place.¹²⁴ One possible explanation for the more complicated voting system is confidentiality. This hypothesis may find support in a passage by Philochoros (fr. 30, cf. app. G.3), in which it is said that the '*ostraka* were deposited turning the writing aside'. To conclude, I think that recyclable objects played a crucial rôle in ostracism due to the *Ex und Hopp*-use of ballots. Their choice as writing materials can be explained by the secrecy of the voting.

As for my second question, it has been noted with reference to literary sources that the individual voter selected the writing material and inscribed it.¹²⁵ Individual recycling practices can also be deduced from potsherds that fit together, but were inscribed with the name of different 'candidates' and by different writers.¹²⁶ The story of Aristides, who was asked to help another voter

¹²³*Per onal plaques*: Lang 1995; Murray 1997 (multiple use in Stura, Euboea and Kamarina, Sicily)

¹²⁴*Brnze t kens* Boegehd 1995b *Pebbles*. Boegehd 1995a, 10. *Beans*. Gamsey 1999, 217.

¹²⁵Plu *Arist.* 7.5; D.S. 11.55. Cf. app. G.3.

¹²⁶*Distribution*: Cf. III.3.1. *Joins*: Thomsen 1972, 95 with n. 262; Philipps 1990, 136 n. 56, and two Megakles *ostraka* deriving from the same vessel (cat. 241), but written by different hands.

with scratching the name, gives evidence that practices of selecting *ostraka* suitable for writing and the actual act of writing upon them could have been carried out by two different people. Lang drew attention to a third pattern, noting that voters voted with finished products which they obtained, either by purchase or free, from professionals.¹²⁷ Lang's notion of 'professionally prepared' *ostraka* seems to be based on her analysis of *ostraka* from a limited number of deposits, including cat. 82, and on the form of writing and spelling, which revealed that some individuals inscribed more than one *ostrakon* at a single *ostrakophoria*. In the case of the *ostraka* bearing the name Kallixenos, Lang (1990, 161) identified just one hand, whereas in the case of the 190 Themistokles *ostraka*, Lang followed Meiggs and Lewis (1969, 40-5) and distinguished fourteen hands. I would add to this catalogue two fragments of roof-tiles, which originally came from the same tile and seem to have been inscribed by the same hand (cat. 240).

It is plausible to explain the *ostraka* from the deposit on the North slope of the Athenian Akropolis (cat. 82) as ballots prepared in advance, on the grounds of the multiple inscriptions in one hand and the remarkable consistency in quality and uniformity of shape of the writing material. The Kallixenos *ostraka*, however, consist of disparate material and it is, therefore, equally plausible to argue that the person who recycled the potsherds was the voter and that the task of the professional merely consisted of neatly inscribing the *ostraka*. That many Athenians found it difficult to write upon their *ostraka* and were grateful for the help of scribes documents the poor writing and spelling skills on *ostraka*.¹²⁸ The scribes could have been simply fellow-voters. The recently discovered private letter of the fourth century B.C. that was written by a professional scribe (Jordan 2000) supports the assumption that professional scribes - perhaps public scribes or even *mageiroi* (Faraone 1991, 4, 23 n. 11) - were present at bouletic *ostrakophoriai* to assist voters in inscribing their *ostraka*. If so, the presence of scribes probably encouraged illiterate voters to participate in politics and made them less dependent on pre-prepared ballots.

It is tempting to associate the scribes of the anti-Kallixenos and anti-Alkibiades ballots, and the suppliers of the pre-prepared Themistokles *ostraka*

¹²⁷Lang 1990, 142, 158, 161 Cf. Vanderpool, cited in Philipps 1990, 135.

¹²⁸*Skills*: Philipps 1990, 137-9. *High degree of literacy in Athens*: e.g. Thomas 1996, but Thomas 1989, esp. 31.

with a specific political faction. They may have been part of the arrangements made to ensure that a specific 'candidate' would in fact be ostracized and not another person, or even the person who initiated this particular ostracism, as is alleged to have happened in the case of Hyperbolos. If so, the neatly inscribed ballots were most likely given freely and not sold, as Vanderpool and Lang (see footnote n. 127) suggested. It is necessary to stress that the faction-oriented activities of professionals is only a hypothesis. It would need to be verified by large scale, inter-deposit analysis and quantification of writing styles, names and materials, showing that one professional worked exclusively for a specific faction at a single *ostrakophoria*.

Little attention has been given to the places from where the *ostraka* came. The range of *ostraka*-pottery used - including plain jars or pitchers, *kraters* or *lekanai*, vases, *kylix* feet and fragments of *skyphoi*, *kraters* and *amphorai*, lamps, *pithoi*, terracotta, water pipes, well-heads and roof tiles (cf. Phillips 1990, 133) – does not provide any clues, because it is not only typical for an *agora*-fill (e.g. cat. 57, 86) but probably also for any household sherd-dump. The locations at which potsherds were recycled most likely varied. The Themistokles *ostraka* seem to indicate that large quantities of sherds could derive from potters' workshops. The low rate of ballots found within the city-walls of Athens, yet outside of the *agora*, may be interpreted as ballots lost on their way to the impeachment process (Lang 1990, 7). Consequently, they suggest that some voters recycled their sherds at home and voted with prepared *ostraka* (cf. Thomas 1989, 3). That recycling practices took place at home may also be inferred from the significant correlation between quality of writing and fabric, if we can assume that richer people were better educated and used finer ware, whereas poorer people had writing difficulties and used coarse-ware.¹²⁹ Aside from workshops and households, a substantial amount of potsherds were probably recycled at the *agora*.

To conclude, the ballots consisted of individually, but probably also of professionally, recycled *ostraka* from around the *agora*, potters' workshops, and household dumps. Most voters and suppliers of pre-prepared ballots did not show much concern for the recyclable objects upon which they scratched the name of their political opponent. However, a few voters seem to have carefully

¹²⁹Link: Philipps 1990, 135.

selected their recyclable objects with a view to creating a symbolic object (e.g. cat. 241, 243). The practice of inscribing was either carried out by the voter himself, by fellow-voters, public scribes or scribes provided by a political faction. As a systematic analysis of all *ostraka* in terms of their handwriting and names has not been conducted, it is difficult to estimate the rôle scribes and political factions played in impeachment proceedings.

IV 4 2 Sacrificial, slaughter, and consumption waste

From the faunal remains of the Athenian *agora* it is clear that bones were recycled in *agorai*. The *astragaloi* found in the altar of Aphrodite Ourania, as I suggest in cat. 90, are not to be interpreted as sacrificial waste, but were used in divination. The skulls of oxen of which the horncores had been sawn (cat. 94) provide evidence that horns from either sacrificial beasts or animals killed to be consumed in *syssitia*, were further processed. It is without doubt that the first stage of the recycling practice - the cutting - was carried out at the Athenian *agora*. It is less, clear, however, where the manufacturing process took place. We cannot exclude the possibility that one of the workshops associated with the *agora* used the horncores as secondary raw material (cf. cat. 8). It is also possible that skins and hides as well as the suitable bones of animals slaughtered at *agorai* were further processed in nearby workshops. That the *agora* of Athens was also the scene of inter-contextual recycling can be deduced from the worn and repaired whale bone used as a tool which was found in one of the wells (D. Ruscillo pers comm.).

IV.4 3 Space

With the formation of the *polis* in the 8th century B.C., the spheres of the dead, humans and the gods were separated, both conceptually and spatially (e.g. Holscher 1998a, 29-45). One of the public places of crucial importance for the *polis*-community was the *agora*, in which a variety of activities, in particular political decision-making processes, took place.¹³⁰ Thus, it may be stated that the *agora* contributed to the expression of the identity of the early *poleis*. In established *poleis*, (including Athens, Megara Hyblaia, Cyrene and Posidonia,) space had to be set apart for the *agora*, which frequently involving converting

¹³ *Importance of agorai from Homeric period*: H Ileskamp 1997. *Political aspect of agora*: app. E, s.v. *agora*. *Range of activities*: app. A.

areas already in use into public places. A number of private dwellings had to be demolished for the Younger *agora* of Athens (cat. 248). In other cities, burial places were levelled to erect *agorai*. This pattern was not restricted to mainland Greece (cat. 246, 249, 251). Some of the earliest *agorai* reused burial grounds: the *agora* of Corinth was built on a graveyard around 750 B.C. (cat. 247) and that of Selinus in Sicily at the beginning of the sixth century B.C. (cat. 249).

The setting aside areas for *agorai* at the end of the geometric period reflects the increasing significance of τὸ κοινόν and τὸ δῆμιον (public matters) over matters of the *oikos*. Some people did not approve of the reuse of private matters by and for the community. The creation of *agorai* met with opposition from those families that had to move house or give up their family graves. The resistance to the erection of the local *agora* in Megara must have been enormous, as it had to be legitimised by the oracle of Delphi (cf. Hölscher 1998a, 34). The erection of the Bouleuterion of Megara above graves was officially presented out of consideration of the feelings of opponents, not as destruction of the cemetery, but as an incorporation of the dead in the process of decision making. It is perhaps noteworthy that the conflict between public and private interests were not restricted to the early phase of the *polis*, but still was an issue in the classical period (Arist *Ath.* 50; cf. app. E s.v. settlements).

The conversion from private to public property was not restricted to *agora*. It also occurred in connection with the erection of sanctuaries. For example, temple F in Selinunt was built over a settlement (Gullini 1989, 436 n. 25; cf. Bergquist 1992, 154). Once land was confiscated by the *polis* in order to be used by the *polis*-community, it seems that it seldom reverted to private use.¹³¹ As *agorai* and sanctuaries expanded over time, the acquisition of land for purposes related to *polis*-matters was a process which was brought into being by and kept going by the development of the *polis*.

IV.4.4 Graves

The erection of an *agora* over a former burial ground involved the destruction of the existing graves (cf. IV.4.3). Some graves, however, were incorporated into the political landscape of the *agora* as heroic monuments, expressing the

¹³¹Cf. Bahe 1997, 25; Korres 1997 on the treatment of cult buildings.

protection of the *agora* and its institutions by powerful and supernatural beings.¹³²

IV.4.5 Summary

The recycling processes and practices within Greek *agorai* were determined by the profile of this public place. They can be compared to sanctuary practices, except for the melting of metal offerings, of which no inventories have survived. When workshops were associated with *agorai*, as in the case of the Athenian *agora*, it can be assumed that the same kinds of recycling activities were practised. Similarly, construction layers contained - as in sanctuaries and settlements - potsherds, *ostraka* and faunal remains. As *agorai* were not agricultural places, recycling practices related to manuring did not occur in this context. Instead, owing to the outstanding political significance of *agorai* (cf. app. E), recycling practices related to political activities occurred exclusively in the *agora* at Athens and Megara, where *ostrakophoria* with sherds were held. In addition, the function of *agorai* as market-places led to the use of potsherds for writing calculations.

IV.5 CEMETERIES

The fourth context for my discussion of recycling practices is the cemetery. The categories of material culture are the same as those discussed at III.5, except for water. The purpose of this section is twofold. I aim to show how my framework would work in cemeteries, and also discuss recycling practices with a view to comparing them to those of the other four contexts. This comparative perspective is relevant for III.5 2, 5-6, and 7, if graves are understood in the wider sense as architectural features.

IV.5.1 The dead

The corpses of the dead were not allowed to be used for any practical purposes. Thus, neither humans nor animals were allowed to use corpses as a source of

¹³²*Relationship of hero cult with political identity*: Holscher 1998b; Boedeker 1998.

meat.¹³³ Ancient Greeks also rejected more subtle ways of using human blood or corpses, for example, as a fertiliser.¹³⁴

IV.5.2 Grave goods

Grave goods were given to the dead for use in the afterlife. When graves were looted, some of the grave goods were reincorporated into the use-cycle and, thus, recycled.¹³⁵ This recycling practice seems to have occurred particularly in classical Lykia, since bilingual Greek-Lyikian curses on gravestones warned any potential wrongdoer that evil will befall him if he were to violate the grave (Strubbe 1991, 38-9). If funerary implements were removed from their original grave to be deposited in another grave, they were, in my understanding, reused. Such a case of reuse occurred at Eleusis, and later at Volimidia, where prehistoric funerary implements were appropriated for new burials (Antonaccio 1995, 266). Funerary implements were probably also robbed from graves to be sold and/or recycled in the domestic context either by using them for their original use or by melting them for reuse as secondary material. The former recycling practice is inter-contextual reuse, whilst the latter is material-reprocessing.

IV.5.3 Coffins and burial vessels

The physical remains of children have been found in *amphorai*, *pithoi*, *hydriai*, bee-hives, cooking-pots and a section of a drain (cat. 259-64, 266-7). Whilst *amphorai* seem to have been most popular for children's burials (Diehl 1964, 146), only one example of a child burial in a drain survived. The placing of adult burials into bathtubs or bath-shaped *sarcophagoi* seems to have been fashionable in archaic Sicily (cf. app. D). Some of these vessels were not newly bought, but had already been used. This can be deduced from usage traces such as fire (cat. 262) and from the fact that they were not locally produced, and were hence imported ware. In contrast to Minoan Crete, it has not been discussed as to whether the bathtubs used in the historic age were used prior to their use as burial vessels.¹³⁶

¹³³*Humans*: Hdt. 3.38; Paus. 10.4 8, app. F, III.5.1. *Animal* : app. F; III. 5.1.

¹³⁴*Plu. Mor.* 669A. Exceptions were Heraklitos and Epicharmos (cited in Olck 1905, 1757). Cf. *Str.* 16.4.26, *Horaz c.* 2 1.2), *Oid her.* 1.54, *Verg Georg* 1 491; *Plu Mar.* 21. *Contra*: Panoff 1970, 242 (tribe of Longueingra).

¹³⁵*In general*: Randsborg 1998 *Gr ece*: e g Corinth, Hero n of the Crossroads (Antonaccio 1995, 214).

¹³⁶*Prehistory*: Ginouvès 1962, 29 n. 1; Laser 1983, S 114 n. 377a.

It is not clear whether the shifting of an already used storage container from the context of the settlement to that of the cemetery as well as the conversion of transport vessels into burial vessels can be called multiple-use or recycling. More specifically, it is unclear whether they were considered waste before being used as burial vessels. The fact that *amphorai* in particular were not considered disposable, as in ancient Rome, and were filled with different substances, including wine, honey and meat, suggest that the function of formerly used storage and transport vessels can be called multiple use.¹³⁷ The traces of repair on *pithoi* and the selling of broken *pithoi* in Athens indicate that they were not considered waste even when damaged.¹³⁸ A reference in Herodotos (3.6.1-2) that empty clay vessels which had formerly contained wine lay around in Greece, and a similar reference in Diogenes Laertios (6.23, 105) to empty *pithoi* in the Metroon seem, however, to indicate that storage and transport vessels could also be reclaimed from the waste stream. Consequently, it is reasonable to assume that the concept of converting a vessel into a burial vessel varied from case to case. As in the case of banana-boxes, (which are commonly regarded as disposable, but serve students as packing-cases,) it is also possible that the use of non-specialised burial vessels varied from individual to individual, depending on whether a person considered an amphora laying around as waste or not (cf. I.2.1 (Thompson)).

These provisional burial vessels seem to have been exclusively used for child burials and their occurrence in cemeteries may, therefore, be explained in terms of the low social status of children (cf. III.5.1). This understanding can be further supported by the fact that many of the non-specialised burial vessels were deliberately broken to insert ashes and grave goods (e.g. Diehl 1964, 146) and, then, only provisionally covered (e.g. cat. 193). Archaic children's cemeteries, in which children were buried in both specialised and provisional vessels, indicate that the conversion of vessels into burial vessels was, in places like Klazomenai, also dependent upon the economic situation of the family. Viewing the use of non-specialised burial vessels exclusively in the negative light of marginality and

¹³⁷*Monte Testaccio*: Burrigato & Grubessi 1997. *Greek amphorai*: Lang 1956, 3, 23-4; Koehler 1986 (pitch); Lawall 2000, esp. 3, 18. *Lekaneis*: Oikonomides 1986, 52 ns. 10-1. *Bee-hives*: Ludorf 1998-9, 41. *Pith* Hom. *Il.* 24 527-8 (blessings and evil); Hes. *Op.* 94-9 (blessings and evil); Ar. *Eq.* 792 (drelling); Willemsen 1968, 24-6, map 2 (trap for siege machines). *Multiple use of other vessels*: app. A, s.v. multiple use. *Multiple use in other cultures*: e.g. Ramage 2000, 90 (Lydia).

¹³⁸*Repair*: Ervin 1976, 19. *Second-hand market*: Amyx 1958, 168-70.

economic necessity may not do justice to the motives behind this transformation practice. More specifically, the selection of bee-hives was perhaps based on the association of honey with the world of the dead, rapture and the infancy of gods (Lüdorf 1998-9, 53). The use of wine-*amphorai* may have played upon the link of wine to the Dionysiac realm, rapture and ecstasy; if so, parents who selected an amphora for the burial of their child may have wished for it to be beyond all tribulation. The use of *hydriai* as transport vessels for water may have had a formative influence on their selection as burial vessels, expressing perhaps the hope of parents that their child be well-groomed in its afterlife. I have suggested a similar interpretation for the use of bathtubs (cf. app. D).

Reuse of coffins and burial vessels occurred, when they were used for a burial other than their original. In the archaic cemetery of Kurtarma Kazilari, Antandros, for example, an urn was placed in a sarcophagos in the sixth century B.C. (cat. 269). The reuse of *pithoi* is discussed as an inter-individual, though not routinized action at necropolis H at Samothrace.¹³⁹

IV.5.4 Graves

It is not always easy to distinguish between multiple uses and recycling practices of graves. This is primarily due to the difficulties involved in determining the moment when a grave entered the waste-stream (cf. III.5.9). I believe it is most convincing to conceptualise the deposition of *katadesmic* spells and voodoo dolls in graves, especially in those who died young or by violent means (a[wroi, bialoqavnatoi), as a practice that did not result in the recycling of graves (e.g. Gager 1992, 19; Graf 1997, 1, 134). Instead, the utilisation of graves, as 'letter boxes' and sites for depositing voodoo dolls may better be categorized as 'multiple use', since it seems to have been essential for the *katadesmic* spells to be placed in an intact grave. It is more difficult to categorise the use of graves and tombs as shelter for slaves, impoverished brothels or lavatories, as documented for the Roman world although not for ancient Greece (Scobie 1986, 402-3 with ns. 26-28 (Roman)). It is equally difficult to interpret practices involving the conversion of graves into hero-graves, cult activities at Mycenaean tombs, and the incorporation of earlier graves into *periboloi*.¹⁴⁰

¹³⁹Dusenbery 1998a, 8 and probably cat. .

¹⁴⁰*Hero-graves*: cf. III 5 1, IV 4 4. *Cult activities*: Morris 1995, 59 n. 52; Lang 1996, 69 n. 381. *Peribolos*: Antonaccio 1995, 207-8.

A phenomenon that has been unequivocally interpreted as a recycling and, more specifically, as a reuse practice was the use of tombs by people other than those for whom they were originally built.¹⁴¹ This could also include family members, if tombs originally intended for any one person were opened up and used again by other family members, as in the case of the tomb for Maussollos (Højlund 1983, 147). Intentional reuse occurred when the tomb was entered or a grave dug in order to sweep away the physical remains and to bury someone else in the same architectural structure. *De facto* recycling occurred when an old, unmarked grave was discovered in the course of digging a burial pit and when the more recent burial was placed into the existing grave. The phenomenon of *reusing* graves has been primarily discussed with respect to secondary burial in Mycenaean chamber and tholos tombs in the Dark Ages and early archaic Greek society, although it also occurred at later times.¹⁴² I will briefly touch upon two different kinds of inter-individual practices of reusing burial places, so as to demonstrate the variety of reuse practices and discussing their possible meanings. Whereas the reuse of Mycenaean tombs was a panhellenic phenomenon, which occurred from the 11th century onwards, the reuse of classical tombs at Athens seems to have been temporarily restricted. Although tombs were reused to a certain extent, it must be stressed that this was not a routine recycling practice. It is possible that at some cemeteries active measures were taken to prevent recycling. The levelling and filling of the Kerameikos can be interpreted as such a preventive measure.¹⁴³

Intentional reuse of Mycenaean graves in various Greek regions was recently systematically analysed by Antonaccio (1995), as part of her study of the treatment of Bronze Age graves in Iron Age Greece (1,100 - 700 B.C.). She identified 57 cases of reuse, which were not equally distributed over Greece (fig. 9).¹⁴⁴ According to Antonaccio's study, the reuse of Bronze Age tombs was most common in the Argolid (21), followed by Attica (11), Messenia/Triphylia (8), central Greece (6), Achaia (5), and Boeotia (3). In Lakonia, Arkadia, and

¹⁴¹*Remains of more than one individual in one location, which may not be interpreted in terms of reuse:* e.g. Hom. *Od.* 24.76-9; Morris 1995, 72; Maaß 1996, 141.

¹⁴²e.g. Snodgrass 1971, 202-12; Coldstream 1976; Antonaccio 1995, 12 n. 4 (references); 1998. *Post-classical reuse:* e.g. Antonaccio 1995, 68; Maaß 1996, 146. *Post-classical reutilisation:* Fraser 1977, 7 with ns. 16-7.

¹⁴³*Levelling operations:* Dusenbery 1998a, 8 n. 4 (with a different interpretation).

¹⁴⁴*Problems in Antonaccio's study:* Ekroth 1997-8, 161.

Northwest Greece, Antonaccio identified just one case of reuse; not a single case has survived from geometric Elis or Corinthia.

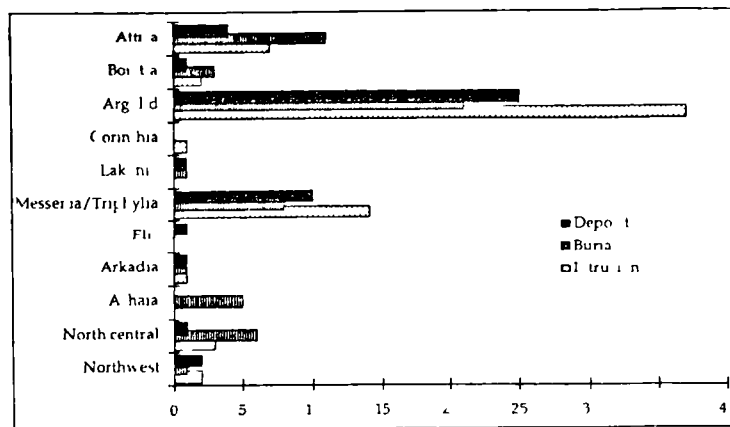


Fig. 9: Reuse rate according to region

There is one example of reuse from Kypros (cat. 268). The reuse of Mycenaean graves may have been motivated by practical and economic considerations, such as convenience and the saving of labour and money (Antonaccio 1998, 49). Antonaccio has persuasively interpreted this as the practice of tomb-cult.¹⁴⁵ More specifically, she (1995, 246, 263) interpreted burial within an older structure as the desire of local residents to establish a special relationship with an ancestor, and also that the importance of before the classical period, the upkeep of ancestral tombs entailed no particular rights or obligations.

A number of recycling practices also occurred in classical Athens. In the fourth century, classical funerary monuments were reused by Athenians who were not descended from the families named on the monuments. Pomeroy (1997, 63, 113) speculated that such reuse was socially acceptable, because the families of the original owners of the funerary monuments were no longer in Athens. Another factor, which may have contributed to the attractiveness of old graves, could have been the fact that old *stelai* were spared from the sumptuary legislation of Demetrios of Phaleron and that the Athenians still wished to erect impressive grave monuments. Pomeroy explained the phenomenon of reusing old graves for burial as an attempt to fabricate family networks and as a

¹⁴⁵Definition of tomb cult: Antonaccio 1998, 48-52.

symptom of nostalgia after the Peloponnesian War, if not an exhortation to return to the family values of the past.

IV.5.5 Stone Burial Markers

Schmalz (1979, 15) and later Clairmont (1993a, 46) have described the classical Attic phenomenon of reusing another person's intact funerary monument as 'reuse and further use' (*Wieder- und Weiterverwendung*). The funerary monuments involved include both *naiskoi* and marble *lekythoi*. The take-over of funerary monuments involved the reinscription of identity of the dead by: (1) altering the inscription (cat. 278, 281, 284), a measure traceable to the archaic period (cat. 285), (2) adding new inscriptions (cat. 285), mainly in reference to the sex of the existing figure except for catalogue 285, (3) altering the details of a figure, such as adding a piece of cloth (cat. 283), or (4) reworking the entire figure with the aim of changing the sex or status of a person (e.g. cat. 275, 277-8). The alterations seem to have followed certain rules. Whereas alterations to the inscription seem to have been typical for smaller *mnemata*, new inscriptions and/or alterations of existing figures seem to have been typical for larger *mnemata*. The latter often involved a significant alteration of the original scene, as in the case of catalogue 238, in which a veiled woman (without a dog) was turned into a young woman contemplating at her jewellery, accompanied by a dog. Thus, it may be concluded that the scenes on larger funerary monuments were primarily changed, whereas the original composition and meaning of scene was preserved on smaller *mnemata*. Moreover, the dead person could be renamed, but none of the known burial markers altered the figure of the dead. The take-over of funerary monuments in some cases also involved the addition of a figure, either painted (cat. 287) or incised (cat. 286, 289). This often lead to a reinterpretation of the existing scene at *lekythoi* (cat. 289) and *naiskoi* (cat. 286). Catalogue 289, for example, shows the single figure of an unknown young warrior, augmented by the figure of an elderly man called Kleochares.

Some alterations and additions of figures aimed at depicting the newly deceased person unified with the person for whom the memorial was originally erected, as in the cases of catalogue 275, 277, 281, 289. In most cases the long deceased was accompanied by the newly deceased without changing the appearance of the former. This could lead to non-canonical compositions of

looking down upon a seated woman. In one case, however, the newly deceased Lysistrate took the place of the formerly deceased Panathenais and the male figure immediately to her left was changed into the female Panathenais (cat 281). Recutting could occur a short time after the erection of the monument (cat. 275), and also up to thirty years later (cat. 277). In particular cases in which the figure and/or the name of the deceased were not erased, then these have been considered take-overs by another family or tribe member.¹⁴⁶ In other cases, funerary monuments may have been reascribed for individuals who did not belong to the same family or tribe as the original deceased. The circumstances under which these take-overs were socially accepted are unclear. It is equally unclear as to whether the *mnemata* were removed from the spot on they were erected, for instance at the borders of the cemetery, and as to where they were recut. If the reworking did not involve transportation, it seems likely that the physical remains of the newly deceased were deposited at the same spot, at which the remains of the original deceased had been placed. Thus, the take-over of the *mnemata* would have gone hand in hand with that of the grave, as in the case of the take-overs by family members.

Whenever funerary monuments were reascribed after the sumptuary legislation of Demetrios of Phaleron, this may be explained as a clever way of getting around the law. However, for all other cases, including catalogue 275 and 277, this explanation is inappropriate. Schmalz (1979, 16 n. 11) explained this Attic phenomenon as a measure by the family of the deceased to keep costs as low as possible. Economic reasons may indeed have been the primary reasons for the frequent further utilisation of *mnemata*. It needs to be stressed that the majority of families endeavoured to hide the economising measures, since the recutting was carefully done and not detectable at first sight (but cat. 285). The secret nature of the recutting practice seems to point to the fact that funerary monuments were made for one person only and not intended to be used by more than one, as seems to have been the case with the palmette *stelai*.¹⁴⁷ Thus, the take-over can be considered to be an example of reuse. It also points to the fact that the reuse of funerary monuments in classical Athens was widespread, but not a socially prestigious action. In this respect, the recycling of funerary monuments in classical Athens can be compared to recycling done out of economic necessity (II.2.3).

¹⁴⁶Schmalz 1979, 17, 19; Vedder 1989, 171. Cf. Papastolou 1993, 19.

¹⁴⁷e.g. Schmalz 1979, 16 n. 14; 1983, 105 with n. 250.

An exceptional case of recycling damaged and intact gravestones (στήλαι: cat. 271) and other funerary implements, such as bases and fragments of *kouroi* although not in the context of cemeteries, is mentioned by Thucydides.¹⁴⁸ He noted that after the Persian destruction of Athens and of its fortification walls at the beginning of the tensions between Athens and Sparta, Themistokles realised the critical importance of the fortifications for the security of the city. While Themistokles pursued his embassy of deception at Sparta, the Athenians at home devoted all their efforts to hastily reconstructing the fortifications, sparing nobody from this work and using all kinds of readily available materials and even dismantling remaining public and private buildings for building stone. According to Thucydides' account, the re-utilisation of gravestones and the preference of common (δημίων) over private interests (ιδίων) was justified only in this particular case of a threat to the security of the city. Thus, we may conclude that it was unusual for the state to reutilise gravestones at classical Athens.

An archaeological study of the Themistoklean Wall may shed light on aspects of recycling practices, which were not mentioned by Thucydides.¹⁴⁹ The funerary implements used included *stelai* and gravestones (e.g. cat. 272-3) with and without freestanding sculptures (cat. 271), bases (cat. 270), and columns. A considerable number of the bases were recycled for a second time, as they had already been reused as funerary monuments (cat. 270). The funerary paraphernalia were partly visible (cat. 270, 272-4), partly invisible (cat. 270). As with the Northern Wall of the Akropolis (cat. 205), the city-wall was built in great haste with a supreme effort being made. However, in contrast to the Akropolis wall, the recyclable objects for the Themistoklean Wall were much more carefully selected in terms of their function and were integrated into the wall, though not as neatly as with the rebuilding of the Themistoklean Wall in 337-22 or 307 B.C., for which the provisional building material was used for a second time (cat. 273-4; e.g. Noack 1907, 129). With this rebuilding and repair programme, most of the reutilised funerary monuments were used as building material for a second time (e.g. cat. 273-4), conspicuously displaying the grave monuments and, thus, the historic events leading to its construction in the first place. Another difference between the Northern Wall and the Themistoklean Wall is the degree

¹⁴⁸Th. 1.90.3; 93, 2. Cf. D.S. 11.40.1-4; Parker 1996, 39 n. 24.

¹⁴⁹*Conditio and placing of funerary implements*: Willemssen 1963.

to which the recyclable objects were recut. Whereas the column drums were built into the Akropolis Wall without any recutting, a considerable number of funerary implements were reworked to fit their position in the wall (cat. 272-3).

IV.5.6 Potsherds

The use of recycled sherds seems to have been restricted in cemeteries and it is not always clear where the actual recycling took place. Sherds were mainly reused as covers for burial vessels (e.g. cat. 272-3). As geometric and archaic burial urns of adults and children were also covered with a stone, it may be surmised that the primary concern of some people was to cover the burial vessels and the material of the stoppers was of secondary importance. In this case, the recycling of potsherds may be explained in terms of preference of function over aesthetics and may be linked to culturally and socially insignificant objects. It may be further concluded that the recycling of sherds and conversion of stones into stoppers took place at the cemeteries. Recycled sherds include the so-called cut discs and terracotta *katadesmoi* and it is possible that they came from burial pottery. However, the broken vessels in which the physical remains of children were placed at the archaic cemetery at Klazomenai, most likely did not come from the cemetery, but the settlement (pers. comm. B. Hürmüzlü; cf. IV.5.3).

IV.5.7 Sacrificial, slaughter and consumption waste

Whenever humans consumed meat from animals in cemeteries, remains such as *astragaloï* could have been recycled on the spot. Whether bones from cemeteries were indeed recycled is difficult to say. The large number of *astragaloï* which were not reworked found in particular in child burials all over Greece may have come, at least partly, from sacrifices performed at cemeteries, if they were not part of the personal belongings of the dead. Grave goods made of bone, which had been recycled and reworked somewhere and were finally deposited in graves, are better documented. Bone grave goods include pins, beads, amulet, disks (cat. 255-8) and, most commonly, *astragaloï*. Whereas the function of the former objects in the afterlife is clear, the function of the flat disks with holes in the centre and *astragaloï* is not clear in all cases.¹⁵⁰ The function of flat discs (cat. 254) found in graves at Assos and Delphi include their use as buttons, gambling

¹⁵⁰List of *astragaloï* found in graves: Kurtz & Boardman 1971, 77, 208-9, 263; Erickson 1998, 838-9, add Dusenbery 1998b, 1145-6; Kavvadias 2000a.

tokens, and brooches. Whenever the natural bone of *astragaloi* was trimmed, pierced, or modified in other ways typical for gaming pieces, they were probably used as play things, especially for children. That the dead were indeed thought of as spending their afterlives playing dice games is attested to in the famous scene of the underworld by Polygnotos, depicting two girls playing with *astragaloi* (Paus. 10.30.2). There are also indications that *astragaloi* served as oracular instruments and, as symbols of Eros for young, unmarried people, in particular (Dusenbury 1998b, 1145, 1146 with n. 6). That *astragaloi* served also other purposes, both for infants and adults, can be deduced from the high number of *astragaloi*, far in excess of the needs of gaming or divination, found in a number of infant and adult graves all over Greece.¹⁵¹ This may be also deduced from unusual spatial *de facto* disposal patterns at the cemetery of Pantanello, Metaponto: the *astragaloi* were not strewn all over the floor, but were collected in a *skyphos*. However, they may also point to age-specific games, as the four graves over the floors of which *astragaloi* were strewn were all child graves, whereas the grave with the *skyphos* containing several *astragaloi* was a male (?) adult grave (Erickson 1998, 839).

IV.5.8 Organic waste

Organic waste probably did not have a high recycling rate in cemeteries, because there was no use for *kopros* as manure, chaff and straw as temper for building material, or vegetable waste as fodder. Cemeteries were not places for production or of agricultural or pastoral activities. Occasionally, however, straw seems to have served as a packing material for precious metal urns (Kunze-Götte *et al* 1999, 1).

IV.5.9 Summary

Recycling of graves and their contents is the best documented recycling practice. The data show that the reuse of Mycenaean graves was a panhellenic practice, which took place from the Dark Ages to the classical period and beyond. The reuse of graves as well as of funerary monuments seems to have been geographically and temporally restricted. Whereas the majority of the recycling practices for Athenian graves after the Peloponnesian War may have aimed at creating social identities, the majority of the recycling practices for funerary

¹⁵¹82 *astragaloi* were found in grave S130 and 38 at grave S148 at Samothrace (Dusenbury 1998b, 1146). Cf. Kavvadias 2000b; Stoupa 2000

monuments may have aimed at keeping funerary expenses low. Using tombs for a second time was not restricted to Greek historic culture, but already occurred in LH III (Cavanagh & Mee 1978). It is also documented for other cultures, including the Karian culture (Bean 1976, 444). Most of the graves discussed were reused only once. One of the so-called Royal tombs of Salamis, Kypros, however, was reused twice.

The reuse of gravestones and bases is best documented for archaic and classical Athens, but as cat. indicated, they seem to have occurred also in other Greek cemeteries. In post-classical Greece, the reuse of grave implements is documented for Demetrias, where the scene of a painted grave stele was considerably altered, Thespiai in Boeotia and Achaea.¹⁵² The reuse of building material was also common in the burial places of Olbia, Sardinia (Manconi 1976, 644). Estimations as to the extent to which funerary implements were reused in non-Attic cemeteries would require a large-scale analysis of the visible traces created by recycling, such as chisel marks around a head to make it smaller or remove hair. In contrast to the recycling of funerary monuments within cemeteries, their recycling outside of cemeteries for purposes other than their original one, was not socially tolerated under normal conditions, not even in classical Athens. An exception was perhaps the oath-stone in front of the Stoa Basileios in the *agora* of Athens, which may have come from a Mycenaean grave (Vermeule, cited in Thompson 1976, 82-4, 315). I have not come across cases of recycling in ancient Greece which are similar to those documented for Greece in late antiquity, where funerary monuments were used as door sills, or for the Roman Empire, where tombstones were occasionally recycled as fountain reliefs.¹⁵³ In ancient Greece, only extreme situations, including threats to public welfare, could justify such measures.¹⁵⁴ At Samothrace, burial vessels were occasionally recycled, but it is noteworthy that they had not been dug up with the intention of recycling them. The recycling of other objects and materials from cemeteries is difficult to identify. It is far easier to identify recycled objects originating from settlements, such as the parts of a costume or broken storage vessels. It must be stressed that these observations are not based on statistically

¹⁵²*Demetrios*: Graeve 2000. *Thespiai*: Karouzou 1968, 40-1 (one example). *Achaea*: Papapostolou 1993 mentioned 7 cases of reuse out of a total of 77 examined grave stelae.

¹⁵³*Late antiquity*: Freyer-Schauenburg 1976, 164-6 no. 81 (Samos F-S), pls. 68-9; Clairmont 1993b, 1.408-9 no. 1.686 (Berlin 1613). *Rome*: e.g. Comstock & Vermeule 1976, no. 354.

¹⁵⁴Cf. e.g. post-classical Chersonesos (Carter 2000)

valid material. Consequently, the conclusions drawn above are to be understood as preliminary statements, which need to be tested against wider and more representatively collected data.

IV.6. Summary and conclusions

Terms, motivations and attitudes

The English phrase 'recycling activity' appears not to have had an ancient Greek equivalent. The terms employed indicate that the Greeks conceived of material reprocessing as a process constituted of the following three phases: destruction (περικόπτειν, κατακόπτειν, καθαίρουσιν); melting (χωνεύειν, συγχωνεύειν); creating something new from another object (τὸ ἐκ τῶν ...).

The link between social status and the use of items of bad or cheap quality on the one hand, and recyclable objects on the other, was explored in chapter 2 (app. B; II.2.2). This aspect was further explored with respect to the relationship between social status and burial. The social insignificance of children, I suggested, is mirrored in the deposition of their remains in non-specialised burial vessels, and the condition of these vessels, which are often are fragmented (IV.5.3). The need to economise was, however, not always restricted to the socio-economically underprivileged. It was also prescribed by the government when the treasury was empty or by the commissioners of a temple when they needed to keep costs low and complete the construction of a building as soon as possible. Occasionally, recycling was practised by the society as a whole during wars, and immediately afterwards (cf. I.1.1).

Economic necessity was an important driving force in making people use waste in a new and creative way, yet it was not the only one. The combination of the understandings and perceptions of recycling practices from the written sources and the analysis of archaeological data showed that processes of reuse, reutilisation and material reprocessing occurred for a number of different reasons (IV.1). The extensive reuse of Athenian funerary monuments by families other than the original owners after the Peloponnesian War, for example, may be interpreted as an attempt to fabricate family networks and thus to create new family histories. More specifically, the past was used to construct an 'image' of stability and continuity. The prominent reuse of parts of the temple of

Athena may be seen as an attempt of the Athenians to give their own view of the events of 480/79 B.C. Material reprocessing was also practised to please the gods (IV.1.10), to publicly humiliate people (IV.1.6), to change the collective memory of history by eliminating the statues of formerly important politicians from public sites (IV.1.3), or to make a symbolic statement about the value of people by transforming their statues into chamber pots (IV.1.3). With respect to the category of resource recovery, we can conclude that material reprocessing was not always the primary motivation for the melting of metal objects. When statues were removed from public sites or melted into chamber pots, material reprocessing was only a side-effect.

The attitudes towards recycling practices were extremely variable. On one end of the scale, it carried a negative connotation, including crime, sacrilege and behaving like a peasant or belonging to the socially under-privileged. On the other end of the scale, it was viewed by philosophers as autarky (IV.1.8), virtue (IV.1.9) or as a source of income (IV.1.7). The assessment of the action was as ambiguous as were the attitudes towards recyclable objects. While, for instance, the so-called gardens of Adonis and ballots made from potsherds seem to have been considered disposable objects, ἀστράγαλοι (ankle bones) were highly esteemed. They were used in cult procedures and deposited along with sacrificial ash in altars (IV.4.2). Vessels, lamps, jewellery and statue bases were modelled upon their distinguishing shape.¹⁵⁵

Variability

I have suggested that the ancient Greeks appreciated not only the material from which waste matters were produced, but also other properties, including their form and their history. This variation in how objects were appreciated was responsible for the wide range of recycling practice of the same categories of material culture (e.g. potsherds), including reuse, reutilisation and material reprocessing. Most impressive is the list of purposes for which fragments of vessels were used, indicating the range of properties perceived and exploited. Potsherds were perceived as things which can cover (stoppers for water pipes and grave vessels) or keep this separate (when used as a stabiliser in pot depots and the firing chamber), as writing material (shopping lists, numeral lists and disposable ballots), space-fillers and stabilising agents (resurfacing floors,

¹⁵⁵Maas & Snyder 1989, 85; Fittà 1998, 15, 16.

construction fill), as being made of the same material as intact vessels (when used as temper), as containers (flowerpots in the Adonia, burial vessels), or as having sharp edges (weapons). The list of properties attributed to skins and hides is also long: they were considered as something which provides warmth (winter-clothes), as waterproof (wineskins), as thin and soft (wrapping material for *plektra*), as soft and smooth (the inlays of metal armour, clothes and shoes), as having no particular form (toys), as being able to produce a sound (drums). The further uses of *κόπρος*, building material and metal dedications were put to were more restricted, but as equally diverse as those of potsherds and hides. *Kopros* served as a conservation material, while its ability to increase fertility made it an ideal fertiliser in agriculture and it was also considered to be an ideal therapy for infertile women. Old building material from temples was reused for the building of new structures within the precinct, including temples and walls. Occasionally, they were also reutilised as writing material and as a means for transporting other new building material. Metal votive offerings were used as tools in sanctuary workshops and as secondary raw material, with or without having being melted down, for the creation of new votives and cult-statues.

Whilst the ancient Greeks commonly used certain recycling strategies, such as the conversion of waste areas into areas for new activities, they did not apply them in certain circumstances. This conclusion may be drawn from the *Πελαργικόν καλούμενον*, if this place in Athens was spared from reuse, despite the great need for room, because of superstitious fears (Thu. 2.17, cf. Rider 1964, 212). Other recycling practices were never practised with respect to specific objects or substances, since cultural conventions prevented their application. Thus, corpses were not exploited as a source of meat, a fertilising agent or, more dramatically, as suppliers of spare body parts, as suggested in Greek myth (IV.3.3). In fact, the exposure of corpses to the elements and animals was regarded by the overwhelming majority of ancient Greeks as a punishment appropriate only for tyrants and traitors. Only minority groups such as the Cynics ordered that their corpses were thrown into the river so that fish could feed from them. Cultural conventions also prevented the use of dried dung as fuel and potsherds as *katadesmic* and well-wishing tablets. The recycling of old votive offerings for purposes only remotely related to their original purpose, by contrast, appears not to have been socially disapproved,

since Geometric tripod legs and cauldra served as tools in metal processing workshops and shops respectively (IV.2.1).

Recycling processes differed not only in terms of the 'formality' involved, the extent to which the integrity of the form was respected (cf. I.2.3), and the function, but also in terms of spatial patterns. More specifically, the various stages of a recycling process could be carried out in one context (internal recycling) - as in the case of votive offerings used in the so-called workshop of Pheidias at Olympia to create a cult-statue, and in the case of manure brought from the nearby sanctuaries to be applied to the fields of the *temenos* - or in different contexts (external recycling), and the case of the Nikai of the Athenian Akropolis, which seem to have been melted down in the *agora*. Recycling practices also varied in terms of the number of people involved in them and the time it took to carry them out. The picking up of a potsherd in order to use it as a weapon can be done by a single person within a short time-span, whilst the melting down of public statues into chamber pots involves a number of people and quite some time could pass between the decision of the *boule* and the distribution of chamber pots. Recycling activities also varied with respect to the time required for the reassimilation of objects and architectural features into the use-cycle. Although most recycling practices permanently affected the status of the object, they sometimes only temporarily changed their social meaning, as in the case of potsherds used as weapons and a *pithos* used by Diogenes as a sleeping place.

With respect to impeachment procedures, I have shown that recycling patterns may not only vary between each other but may also vary for one particular recycling process (the recycling of potsherds) for a particular event (ostracism) in a particular city (Athens). On the basis of textual references to the process of ostracism and the more than 11,000 *ostraka*, which have been unearthed from all over Athens, three patterns could be distinguished: (1) the individual voter picked up the potsherd and inscribed it (2) the individual voter picked up the potsherd and asked either a literate fellow-citizen or a professional scribe to scratch in a name; (3) a small group of professionals took over the selection and inscription of the potsherds, which would be distributed at the *ostrakophoria* to individual voters.

Continuity and change

The duration for which a particular recycling process was in common use varied from practice to practice. The use of κόπρος as manure and hides as secondary material for textiles and musical instruments were common from the Homeric to the Roman periods. The reutilisation of potsherds as 'scrap paper' appears not to have been practised in the geometric period, but is documented from the archaic period. Similarly, the use of inscribed potsherds, the so-called *ostraka*, as ballots in *ostrakophoriai* only became popular with the invention of bouleutic ostracism in the late sixth-early fifth centuries B.C. Recycled potsherds are not only evidence of disposable ballots, but also of regional variability: whilst the names of the political opponents were inscribed on broken terracotta objects in Athens, Argos, Megara and Miletos, they were written on olive leaves in Syracuse. The minting of coins out of votive offerings is said to have become more common from the fourth century B.C. I suggested that this phenomenon can be explained, on the one hand, as the outcome of the long-term development of blurring the boundaries between ἀγάλματα and χρήματα, which had reached a new dimension after the Persian Wars, when metal dedications were transformed into bars before they crossed the boundaries of sanctuaries as votive offerings. On the other hand, it may be explained by the emergence of mercenary armies in Greece in the second half of the fourth century, which required large financial resources.

Within Elias' model, the process of specialisation plays a central rôle, as it is viewed as a step towards a higher degree of self-constraint and, thus, of 'civilisation'. In terms of recycling practices, I suggested, that such a development would occur, if specialised objects substituted recyclable objects (I.2.1 s.v. Elias). The items and substances discussed clearly showed that there was no such a large-scale development. I could only identify such a process in connection with the construction of water supply systems of the *Agora* in Athens. Whereas the holes of drains and mouths of wells were covered with ceramics recycled in the archaic period, objects were specially designed and produced for these purposes in the classical period.¹⁵⁶ These changes are not indicative of a civilising process in Elias' sense of the word for three reasons: firstly, this development is too limited to have wider implications. Secondly, a trend in the opposite direction - that is to say from the use of specialised objects to the use of

¹⁵⁶Well: Lang 1968 on fig. 6 *Drain*: cat. 266.

recyclable objects - can be observed in workshops: whereas the nozzles of pre-Hellenistic bellows were modelled in clay by hand, they were made from broken *amphora*-necks in post-classical Greece and the Roman world (Mattusch 1988, 233). Thirdly, there are a number of recycling processes which were carried out with the same material and intent from the Homeric to the classical period.

Organisation and the second-hand market

When recycling was anticipated, as in the case of manuring fields and melting down of bronze scrap in foundries, it was organised by collecting the dung and scrap metal in specific places. Similarly, the setting apart of places as *agorai* and the use of old or abandoned building material for temples may be termed a planned action. An impressive example of the reuse of the building material is the dismantling of the Rhoikos temple in Samos in the course of the erection of the succeeding temple.

Little is known about the ownership of old building material. The recycling pattern of the Sikyonian treasury seems to indicate that the commissioner of the structure remained the owner of the old blocks. It is difficult to say how far this also applied to the building material of temples. Perhaps, abandoned and old blocks were neither the property of the builder, nor the commissioner, but of god to which the temple was dedicated. It is also possible that there were no clear rules about the recycling of building material and that everybody in need could claim it for whatever reason, including of building material, conveyance material for new building material for a temple, and writing material for a Sacred law (IV.2.5).

In terms of ownership of old building material, the recycling pattern of the Siphnian treasury seems to indicate that its reuse was restricted to the commissioner of the structure. The columns of the Rhoikos temple as a means of conveying the building material for the new temple may indicate, however, that everybody was allowed to make use of whatever was not intact and lay around in sanctuaries, as long as it was used in the vicinity of the *temenos*. This rule seems also to have been applied to votive offerings of the Heraion and the sanctuary of Zeus in Olympia, where votive offerings were used as tools in workshops in or near the precinct.

Ancient Greek society was not a society which threw things away. This can be deduced from the flourishing second-hand market and the market for secondary raw material. The use of items and substances having a perceived recycling value was not restricted to the 'profane world'. The sale of hides, κόπρος (human and animal excrement), ἰλύς (mud) and perhaps even of sacrificial ash, increased the finances of the priesthood and that of sanctuaries. The sale of manure appears to have been restricted to rural shrines, with fields only being leased out under the condition that the manure would be brought from the sanctuary. This provision not only secured the funds of the sanctuary, but also ensured that the land would maintain its value. In most cases, the manure seems to have been supplied ready for transporting. In the sanctuary of Kodros, Neleus and Basile, however, the farmer had to remove the mud from the trench running through the shrine by himself.

Apart from the provisions issued by *polis* authorities for the management of waste matters in sanctuaries, the 'state' seems not to have been engaged in the sale of marketable waste-products and substances. In classical Athens, for example, the *polis* authorities appear to have been involved with the sale of *kopros* from only one channel of a complex drainage system, as well as in the auction of household-items from confiscated *oikoi*, including Panathenaic prize *amphorai*, the expensive dress of captured enemies and broken (relief?) *pithoi*.¹⁵⁷ The market for secondary raw materials seems to have been dominated by private entrepreneurs such as *koprologoi* (cf. II.5) and farmers (cf. IV.3.3). Rostoker and Gebhard (1980, 351) assumed that metal scrap was distributed by people who specialised in its collection and sale. However, if the changing freight of shipwrecks across time is significant, it can be concluded that, in Greece from the Homeric to the classical period, waste metal and used building material were not considered precious enough to be traded over longer distances, as was the case in Bronze Age and Byzantine Greece.¹⁵⁸

Contexts

A comparison of recycling practices between contexts with respect to their recycling rate, the range of waste recycled and the range of functions they

¹⁵⁷*Attic stelai*: Pritchett 1953; 1956 Miles 1998, 8 n. 24. *Clothes*: Ath. 55 E.

¹⁵⁸*Cargo of shipwrecks*: White 1999; listed under 'shipwrecks' in <http://perseus.csad.ox.ac.uk/cgi-bin/ptext?doc=Perseus:text:1999>. *Building material*: Cormack 2000.

served, showed that in settlements a remarkable variety of waste was recycled in very different ways, and probably to a high extent. In cemeteries, by contrast, recycling was restricted to reuse and reutilisation. These activities respected the integrity of the waste object, except for the child burial vessels which were deliberately broken. It has been argued that this breakage was not 'ritual killing', as the holes created served the practical function of inserting grave offerings bigger than the diameter of the neck of the vessel into the burial vessel. The differences between the two contexts may be explained through the different profiles of these places. Whereas the former was related to production and agriculture, the latter was a location of restricted activity and a place into which recycled objects were brought, mainly from the settlement (e.g. costume of the dead, bone accessories as part of the costume etc.).

The recycling profile of the two remaining contexts of sanctuaries and *agorai* is difficult to judge and may have varied from place to place. While practices of material reprocessing seem to have been fairly common activities not only in panhellenic sanctuaries, but also in smaller shrines, the reutilisation of votive offerings as tools seems to have taken place on a much smaller scale. In the sanctuaries of Samos and Olympia, the reutilisation of votives for purposes other than the making of new votives and cult statues appears to have been tolerated only after the tripods had gone out of fashion and were considered rubbish (cf. III.2.1, 6). Finally, recycling activities within *agorai* appear to have varied considerably. *Agorai* at which recycled and inscribed potsherds served as ballots in impeachment procedures to which workshops were adjacent had a high recycling rate, while those with no nearby workshop had a much lower recycling rate.

Workshops are not easily confined to a specific context. They were manufacturing areas with a high recycling rate and a wide spectrum of recycling practices unrelated to their location. Aside from the waste produced by the workshops, including misruns, other kinds of recyclable objects are claimed to have been used, for example as sawdust and leaves for fuel. With respect to the extensive use of readily available or cheap materials, historic workshops did not

differ much from workshops of Bronze Age Greece and the Hellenistic period.¹⁵⁹

Elias and recycling

There was no considerable trend towards an increase in the degree of specialisation or the extent of control exercised by the *polis* authorities on recycling practices. This does not necessarily mean that there was no increase in the degree of self-restraint from the Homeric to the classical period, but that recycling practices were not affected by the development towards a higher degree of self-restraint (and thus 'civilisation') described in connection with disposal practices. More specifically, this chapter has shown that trends towards a higher degree of self-constraint went hand in hand with human behaviours which did not change. This case-study underlined Duerr's (1998, 1-3) criticism of Elias' interpretative framework, namely that he tended to overemphasise behavioural changes in terms of a civilising process. The civilising process is not a myth, however, as Duerr and others have claimed, but a far more fragmented process than Elias was ready to admit.

¹⁵⁹*Bronze Age*: Immerwahr 1990, 13 (plaster); Brysbaert 2000, 52. *Hellenistic period*: Maniatis & Bassiakos 2000 (metal slag as building material for Hellenistic kiln/furnace at Athens). *Other cultures*: e.g. gold workshops at Sardis (Middleton *et al* 2000, 167).

V. FINAL CONCLUSIONS

This doctoral thesis may be understood as an original contribution to a newly arisen research interest in understanding and interpreting the processes of waste disposal and/or recycling as well as the archaeology of value and processes of valuation in various archaeological disciplines.¹ It goes beyond the discipline of 'garbology', which was founded by Rathje, as recycling practices are considered a strategy of dealing with waste and, thus, a crucial practice of waste management.² To broaden the category of recycling so as to sketch a more comprehensive picture of the range of recycling practices found in ancient Greece and the properties of waste matter ancient Greeks appreciated and valued was one objective of this study. Towards the theoretical discourse, I contributed a universally applicable model for the analysis of waste management practices by synthesising the approach of New archaeology, in particular Schiffer's behavioural analysis of formation processes of the archaeological record, with the more sophisticated concerns of Post-processual archaeology with its interpretation of cultural meaning and the history, sociology and anthropology of conceptualisations of dirt, pollution and cleanliness (chapter I). This integrated model allows for an analysis of systematic variation, according to context, material culture category, time and regional differences, which is the first step towards an interpretive understanding of the varying social importance and cultural valuation of different contexts (such as sanctuaries or cemeteries) as well as different kinds of material culture, from consumable domestic artefacts to religiously valued votives and from negatively valued 'dirt' and 'rubbish' to socially appreciated recyclables.

Terms, concepts and attitudes

In accordance with the post-processual perspective, I explored the cultural concepts and categories of waste, its disposal and recycling with a view to understanding the ways in which ancient Greeks perceived and valued practices of disposal and recycling. I showed, for example, that waste was not a homogeneous mass of discarded or unwanted items and substances, as it is in modern western European countries. More specifically, the ancient Greeks did not seem to have had a collective term comparable to the English term 'waste'. The existence of the abstract concept of *μίανσμα* for everything dirty and polluted, suggested that the lack of a comparable concept of waste cannot be explained by a lack of abstract thinking, but rather in terms of social irrelevance. Instead, there were a number of sub-categories based on specific activities (e.g. sweeping, dropping, cleansing, and separating) which were more important in classifying objects than general disposal. In the ancient Greek language, there existed terms for sweepings (*χλῆδος*, *κόρημα*, *συρμάς*,

¹*Disposal and recycling*: cf. chapter 1 with n. 5 *Value*: e.g. Carver 1996; Voutsaki 1997; Whitelaw 1999, 61-5, Wijngaarden 1999.

²*Garbology*: Rathje 1990; Rathje & Murphy 1992, 14, 171.

συρφετός, φορυτός), droppings (τα πίπτοντα), left-overs (τὰ λειφθέντα, λείψανα, ὑπολειπόμενα), anything thrown away during cleansing (κάθαρμα, κάθαρσις). These collective terms suggest that for the Greeks such specific activities were of social significance. In addition, the waste matter κόπρος, seems to have been of crucial importance to the ancient Greeks: κόπρος could denote vegetable matter and faeces, either heaped up or collected in cesspools, as well as manure spread over fields.

As far as waste management processes and practices are concerned, there is no comparable term in ancient Greek. There are, however, terms which may be translated and thus conceptualised as 'waste disposal or recycling'. The action of dumping could be expressed with verbs compounding verbs, such as *verba composita* with βάλλειν or ἵασθαι as well as verbs such as ρίπτειν, καταποντίζειν and χούν. 'Recycling' was primarily understood in terms of material reprocessing. The terms employed indicate a threefold process: destruction (περικόπτειν, κατακόπτειν, καθαιρούν); melting (χωνεύειν, συγχωνεύειν); and creating something new from another object (τὸ ἐκ τῶν ...).

The motivation behind practices of waste disposal and recycling and the situation or context in which they occurred influenced their evaluation and the places in which the practices were carried out. For example, disposal practices carried a positive connotation, when seen as a result of intelligent behaviour or entertainment; they carried a negative connotation, when perceived as a criminal act, an insult or as an humiliation. As I have shown in III.1, the motivation for shifting objects and substances to the waste stream influenced not only the perception of the disposal practice, but also its output - waste. Recycling practices were indeed linked to economic necessity and social status as well as when societies suffered temporary material scarcity, as it has been stated in modern literature (cf. I.1.1). Recycling not always carried a negative connotation. The Cynics, for instance, used practices of recycling intentionally as a positive means of differentiation, which distinguished them from others in society. Their behaviour of making use of things other people considered waste can perhaps be interpreted as an intentional movement against an *Ex und Hopp*-society.

Greek legend, law and practice also show that in certain circumstances, even the same type of disposal practice could be valued differently. Towards decent people, it was considered an horrendous crime to dispose of their corpse without burial rites into ravines, the sea or beyond the borders of civilisation. Whereas, these disposal practices were acceptable as traditional punishments imposed on tyrants, traitors and murderers (cf. app. F; III.5.1).

Variability

I have shown that waste management practices were a permanent part of ancient Greek life and may therefore be called everyday practices. Ancient Greek society was not a throw-away-society. This recognition is not too surprising, since the creation of non-value linked to our *Ex und Hopp*-society is the result of the Industrial Revolution. Waste disposal practices occurred across all contexts under discussion, including sanctuaries and cemeteries. As I have suggested, votive offerings and sacrificial waste were disposed of, but probably not at a high rate (pl. 10). This recognition is particularly interesting with respect to the profile of sanctuaries, which were presented as special places (e.g. *perirrhantaria* prohibitions for denying access to dirty things and people; cf. app E; III.4.2). Although disposal and recycling practices were specific to contexts, such as the disposal of votive offerings to sanctuaries, there were other practices which occurred across all contexts, such as the use of *ostraka* in construction fills. The recycling of *kopros* as manure, by contrast, only occurred in contexts in which agricultural activities took place, namely fields associated with sanctuaries and settlements (pl. 11). Variability of waste management activities with respect to material culture category, can be most impressively demonstrated with respect to recycled potsherds: they served as burial vessels, weapons, toys, plant protection, bird traps, writing material, fill, and temper. The ancient Greeks had a highly developed sense of seeing multiple properties in an artefact.

Elias and waste management practices

The parameter of time was explored with respect to the Eliasian approach to the Civilising Process, which allowed us to interpret and understand changing disposal and recycling practices with respect to socio-political changes, in particular the development of the *polis*. I suggested that changes indicating monopolising tendencies of the *polis* occurred in the first half of the fifth century, perhaps even earlier, when *polis* authorities started to issue written disposal regulations. Significant changes in the way organic waste was disposed of occurred in the course of the fifth century, when sewage systems were built on behalf of *polis* authorities. The changes in disposal patterns link nicely into the transformations processes I identified with respect to cleanliness and attitudes towards depictions of symposiasts who relieve themselves, as well as the monopolisation of power over the individuals configured in the *polis* (cf. II 5). This transformation process, from the geometric to the classical periods seems to have occurred in two stages, of which the turning points seem to have been c. 500 B.C. (rape/excessive drinking/disposal regulation; first sewage systems) and c. 450 B.C. (disappearance of the iconography of dissolute symposia; democratisation of penal system) and at the turn of the classical to the Hellenistic period (cisterns/lids for *megara*). This process may be called a civilising process in the Eliasian sense of the term, as it is determined by trends towards greater refinement, shame and thus self-restraint and monopolisation of power by *polis*

authorities When considering more than one context (app. D, E), the development is not as clear and broad as Elias has presented it in his case-study. Having in mind that there appears to have been no major changes of recycling processes across time (cf. IV 6), it may be concluded that Greece underwent a civilising process in the Eliasian sense of the term, but that this transformation process was fragmented and less broad.

Infrastructure and organisation

The collection of waste and *kopros*, in particular, was in Athens and perhaps also in Thebes and other classical *poleis* run by private entrepreneurs such as the *koprologoi* (cf. II.5). The role of the *polis* seems to have been restricted to setting the framework in which these entrepreneurs would have to operate. For example, the *polis* authorities prescribed the distance at which the *koprologoi* were supposed to finally deposit the *kopros* they had removed from cesspools. *Polis* authorities also regulated the disposal of waste (and sometimes even its further use) derived from sanctuaries, *agorai* and streets by prohibiting the disposal of certain types of waste or waste in general. These measures may be understood as protection for the common places of the *polis* (τὸ δῆμιον) from defilement by individuals, which is attested in other situations as well (cf. e.g. Arist. *Ath.* 50-1). The *polis* not only issued these legislative prohibitions, but also was responsible for the punishment of pollution of common grounds and any other legal dispute concerning illicit waste disposal. It is perhaps noteworthy that, in contrast to modern Europe, the courts at Athens did not have to decide whether a layer containing waste was to be interpreted as recycling or as illegal waste disposal. Modern cases of such disputes include noise barriers constructed with waste or valleys being terraced for the construction of a motorway.

Polis authorities appear to have played an active role in the provision of public sewers, which at the same time functioned as drainage systems for storm and excess water. In Athens, the *polis* just provided the main drainage and the individual households had to connect themselves to the system if they wanted to change from cesspools to water closets. *Polis* authorities also seem to have been involved in the erection of public latrines in Athens by the fourth century B.C.

Second-hand markets and markets for secondary raw materials were not restricted to the 'profane world'. The sale of hides, κόπρος (human and animal excrement), ἰλύς (mud) and perhaps even of sacrificial ash, increased the finances of the priesthood and that of sanctuaries. The sale of manure appears to have been restricted to rural shrines, with fields only being leased out under the condition that the manure would be brought from the sanctuary. This provision not only secured the funds of the sanctuary, but also ensured that the land would maintain its value. In most cases, the manure seems to have been

supplied ready for transporting. In the sanctuary of Kodros, Neleus and Basile, however, the farmer had to remove the mud from the trench running through the shrine by himself.

Outlook

Even at the end of this research I am left not with a sense of satisfaction that the material is exhausted, but with the realisation that many of my conclusions remain preliminary. Future research could pursue a number of avenues. This doctorate could be extended with respect to a more systematic analysis of factors that on the one hand appear to have conditioned the entering of elements into the waste stream and, like repair, prevented objects from passing out of the use-cycle. Furthermore, factors that influenced the recovery method, like availability of raw materials, transport, technology, and the processes surrounding the manufacture of symbolic objects (and prevented, for instance, grave goods from being recycled) also deserve greater elaboration. Research could also be brought further by quantifying waste disposal and recycling processes of a particular material culture category, or a number of groups of material culture categories in one or more contexts, with a view to testing the hypotheses regarding the differences between period and contexts. On a strategic level, a statistically valid analysis of patterns of discard and recycling of votives in Greek sanctuaries within the parameters of time, regional variability versus panhellenic practices and town versus countryside, may well yield interesting results. Another possibility would consist in applying the presented model to Hellenistic and Roman Greece and, thus, focus on the Eliasian aspect of social and individual transformation processes. It would also be interesting to follow up the line provided in the first chapter and compare aspects of waste management strategies of two or more societies, such as the Greek and the Roman, and to play off similarities against differences and to explain them in terms of Eliasian figurational sociology. Lastly, an analysis could be conducted that explores the influence of various social and economic organisation, for example, on urban and rural sites, and the attitudes and lifestyles they give rise to, from the perspective of patterns of waste disposal and recycling.

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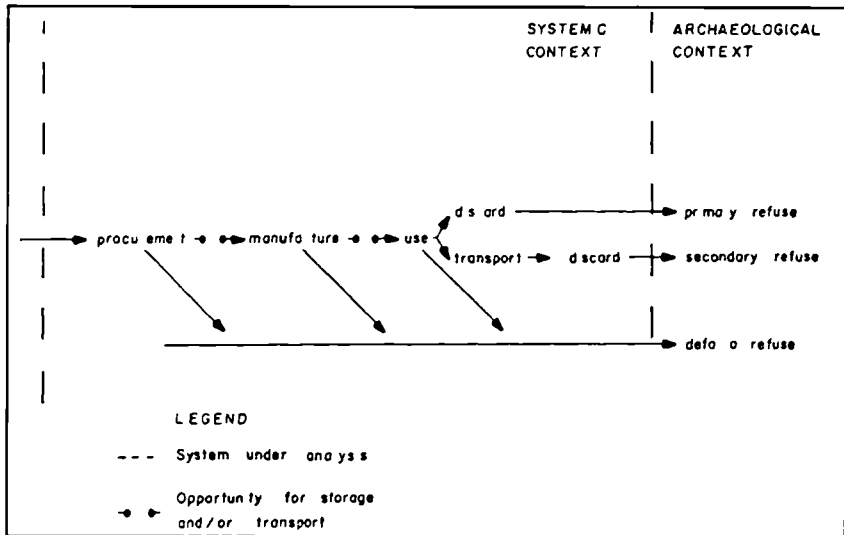
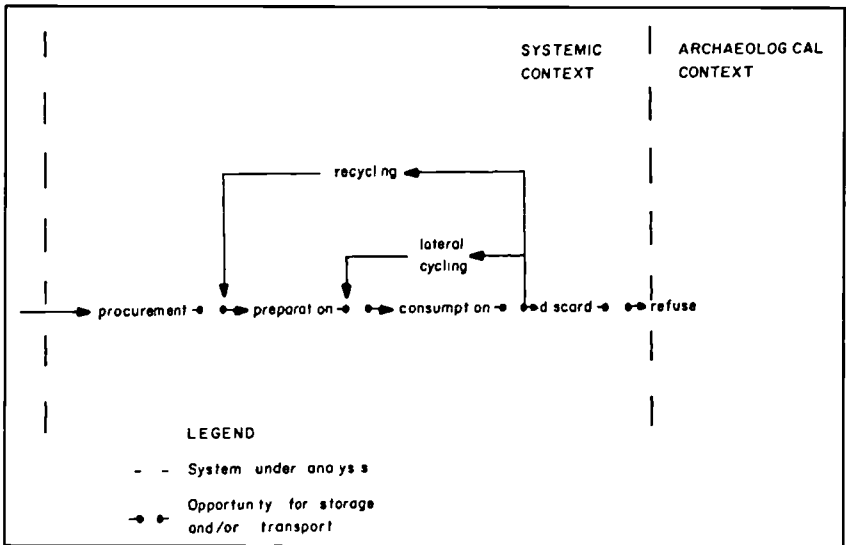
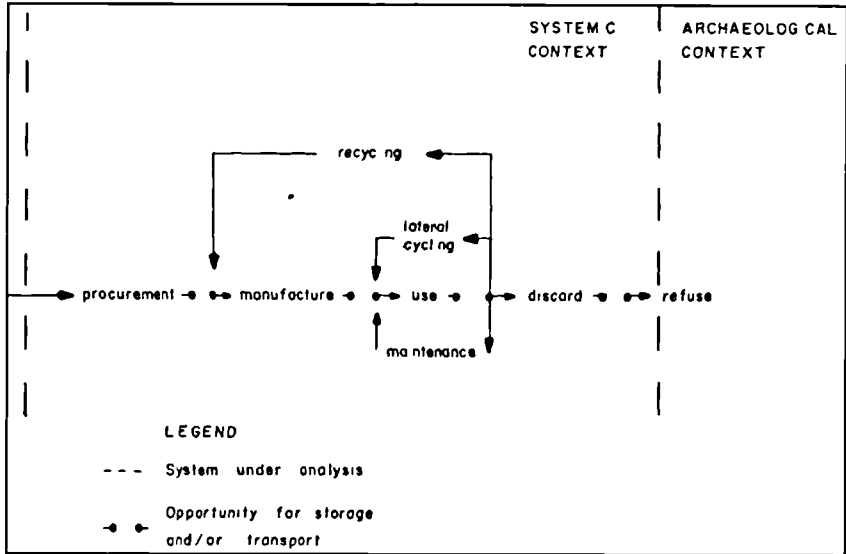
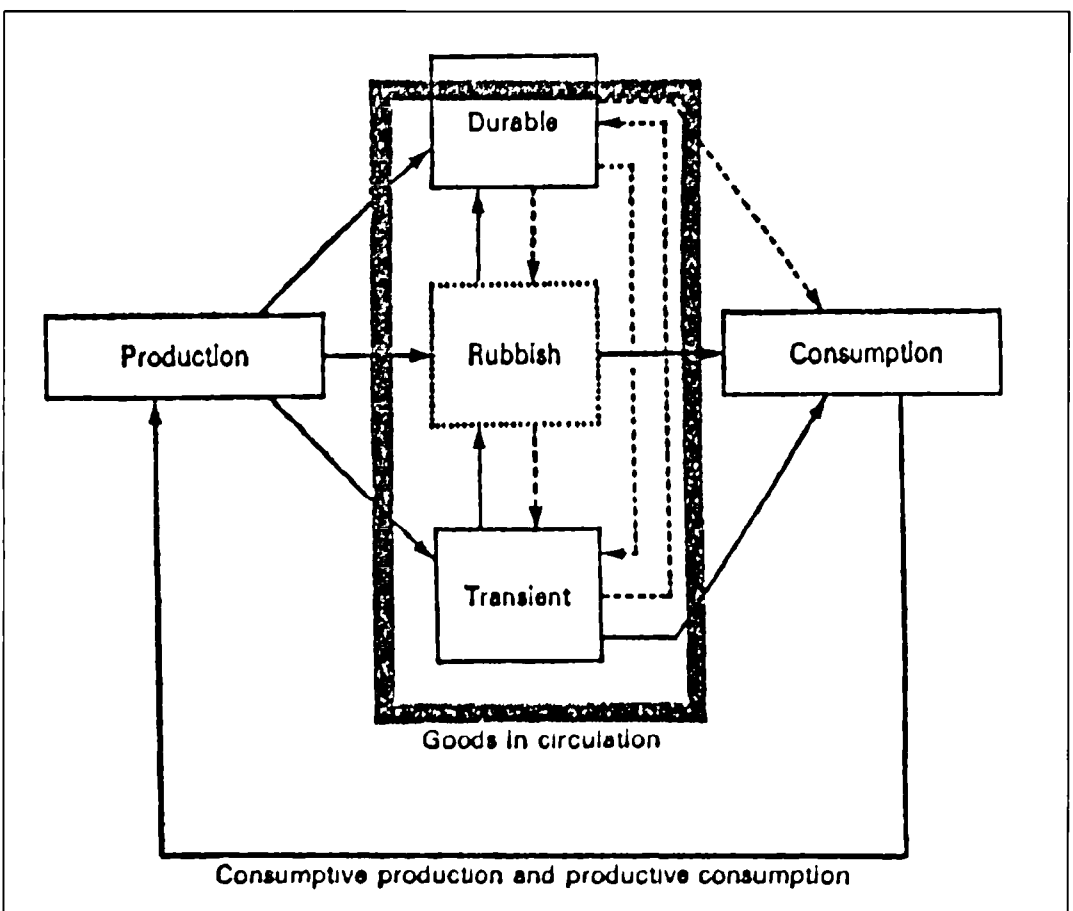
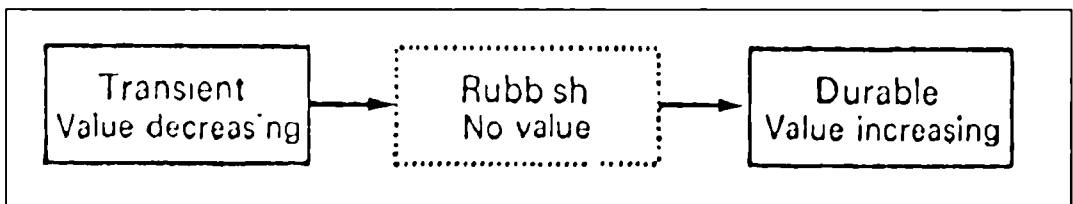


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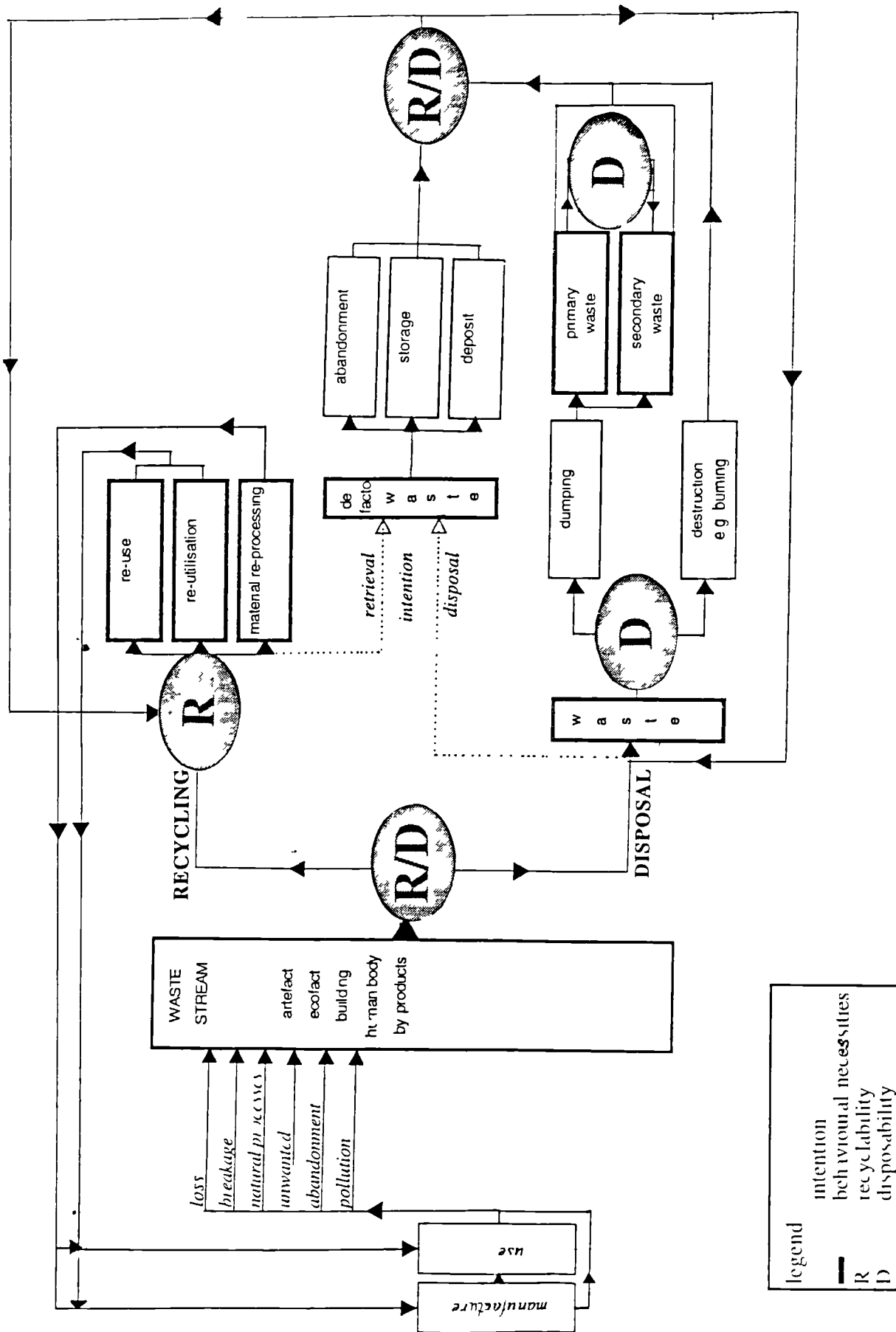


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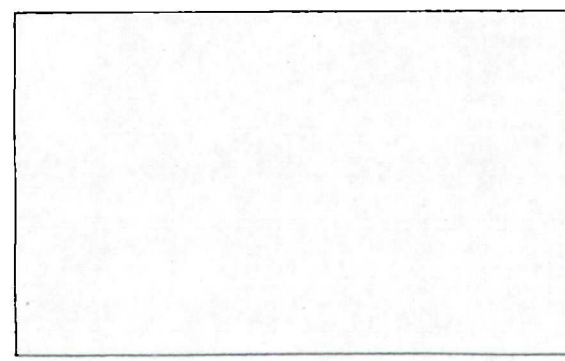
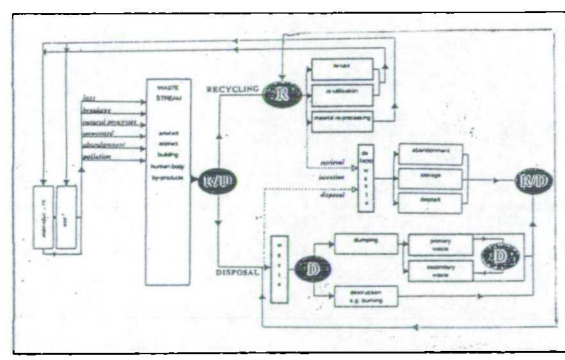
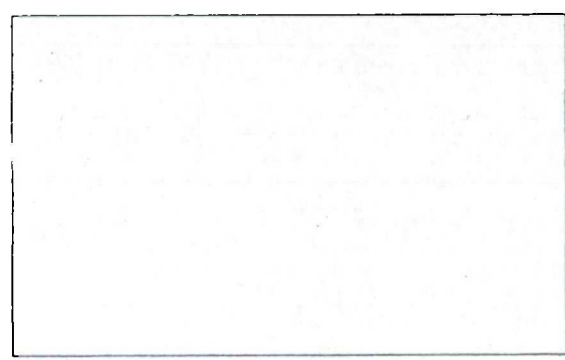
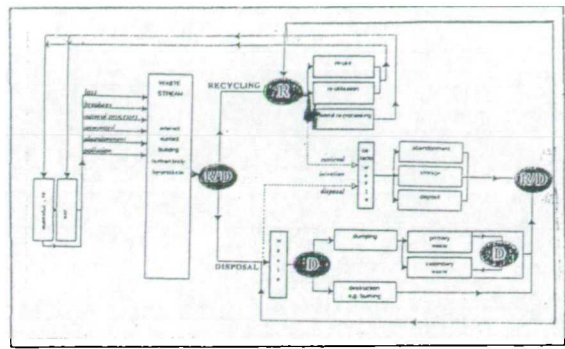


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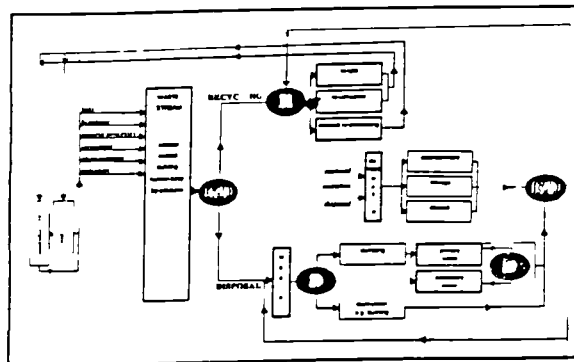
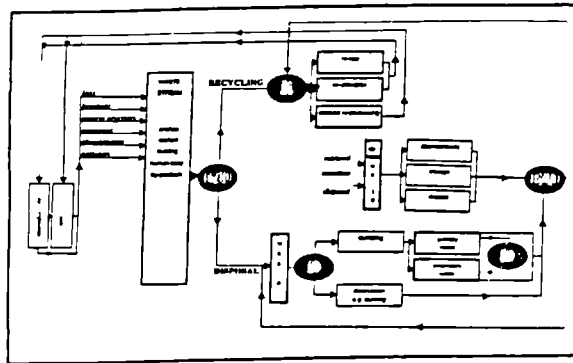
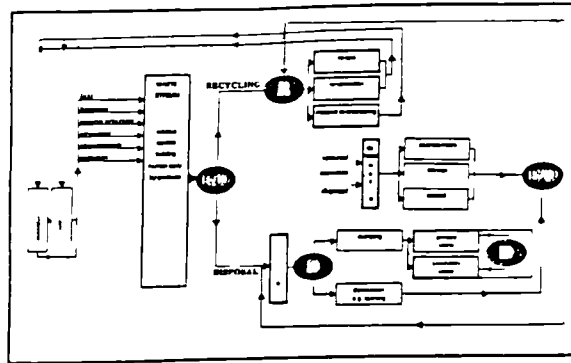


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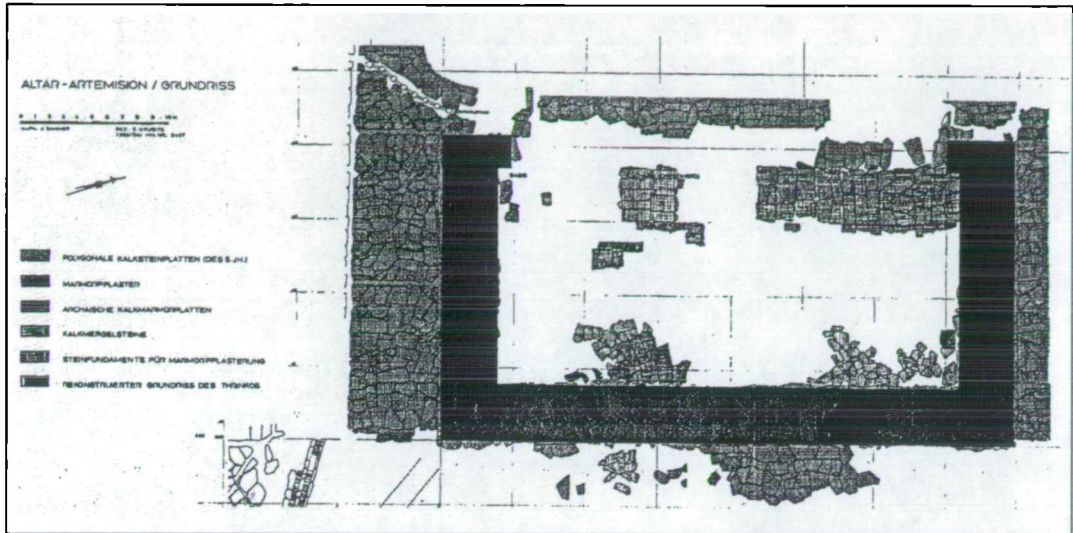


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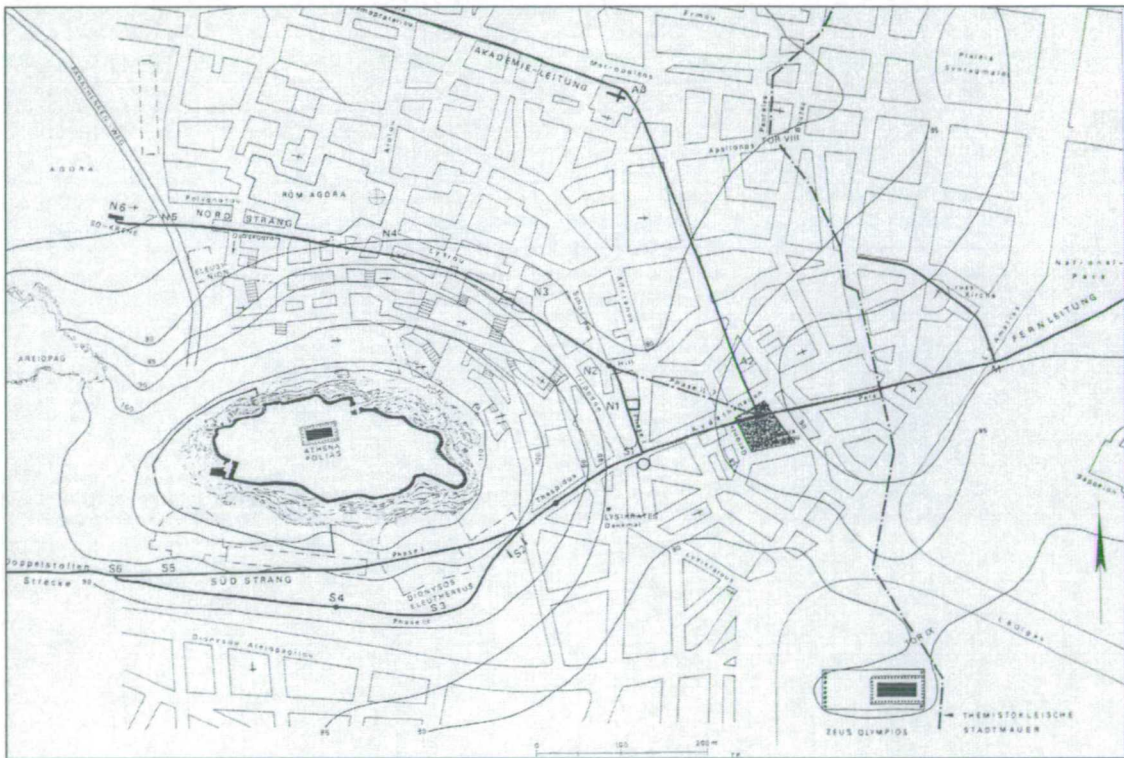




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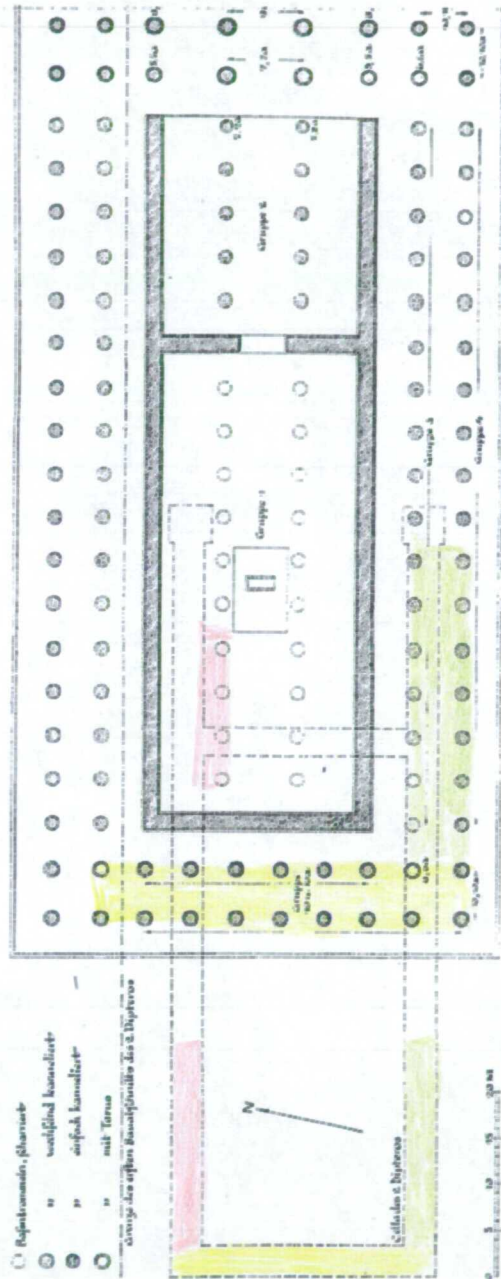


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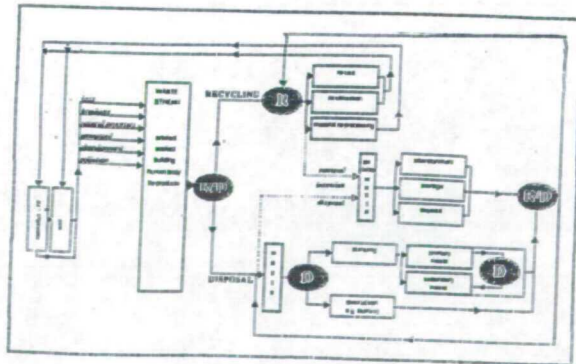
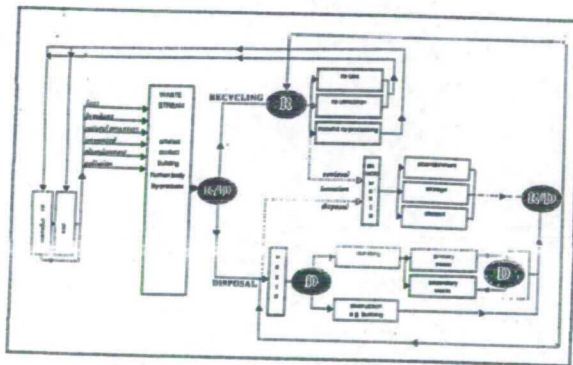
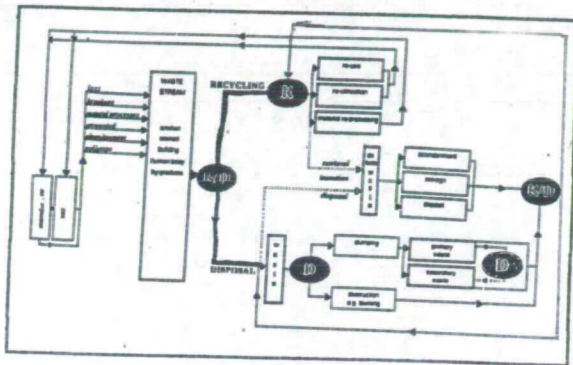
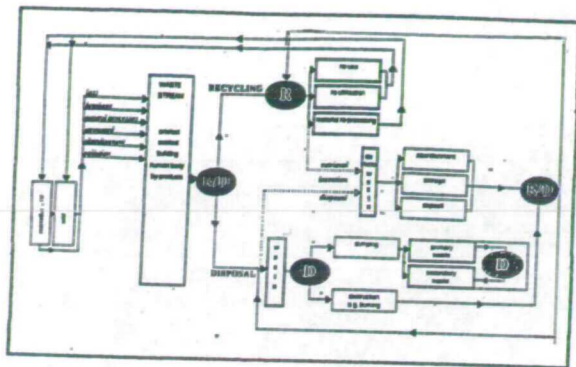


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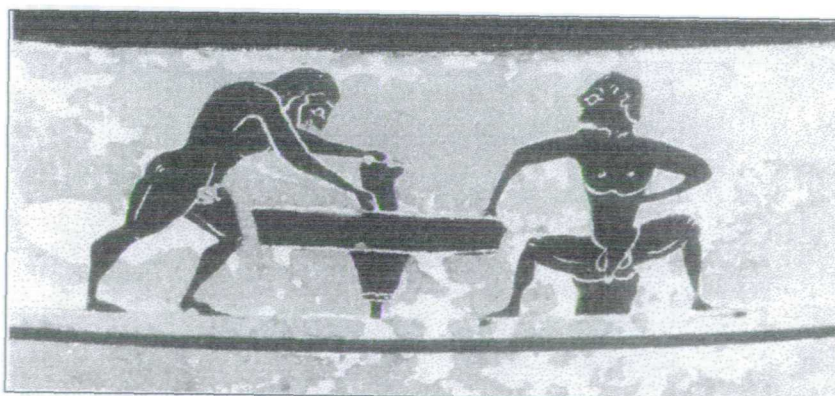
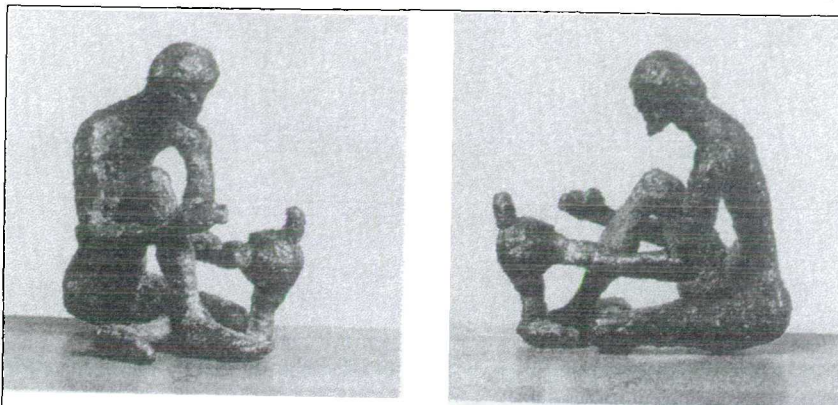


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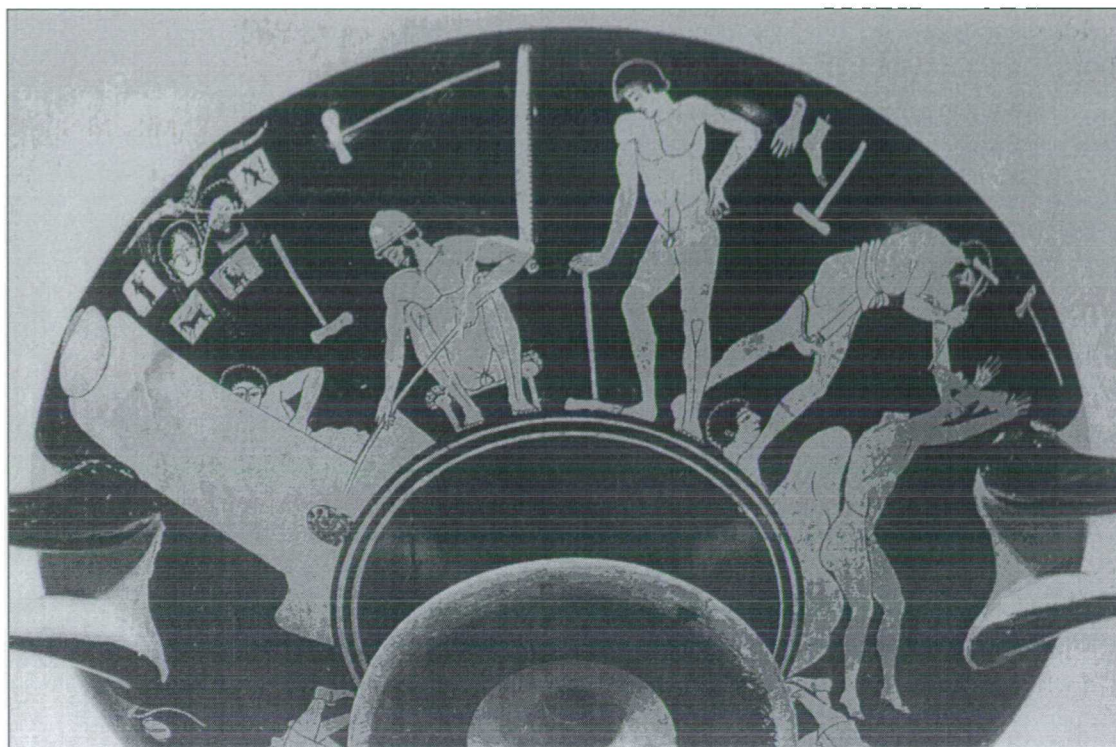


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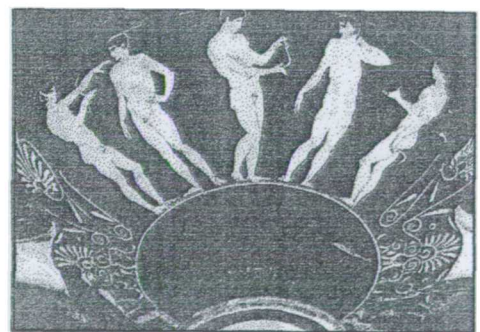
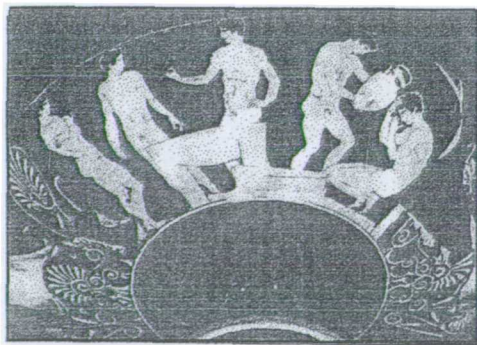
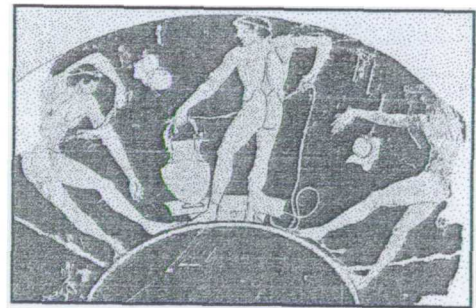
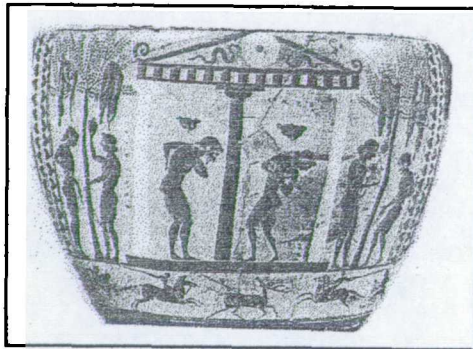
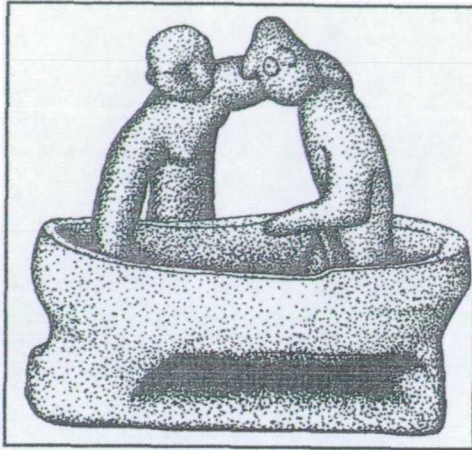


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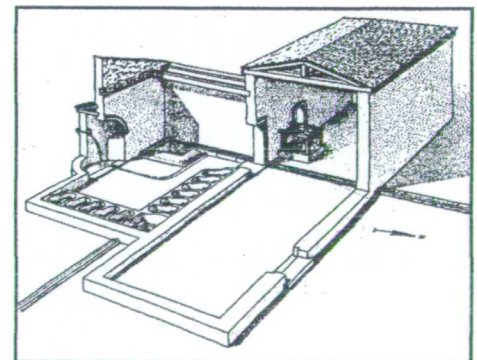
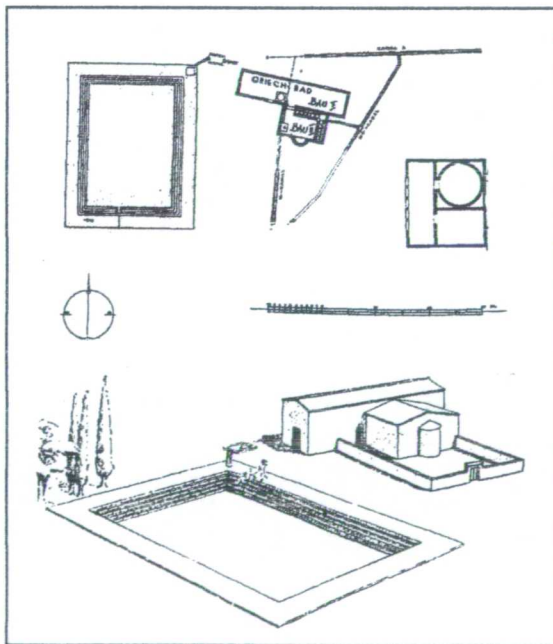
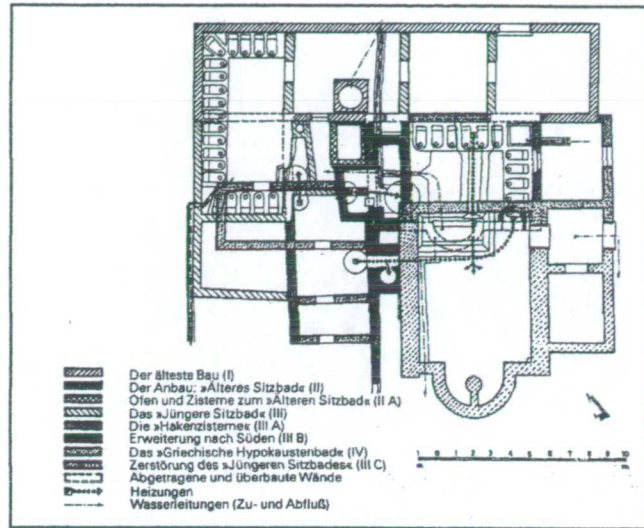


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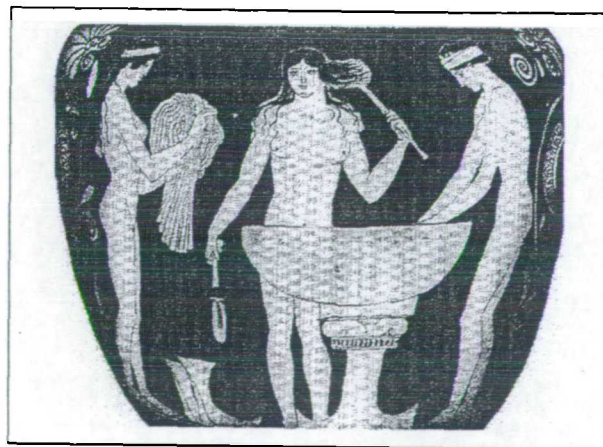
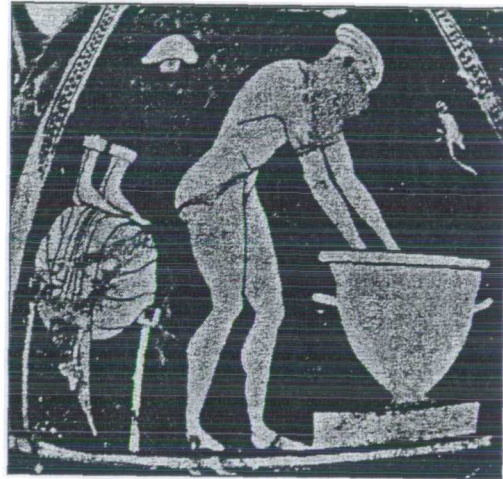
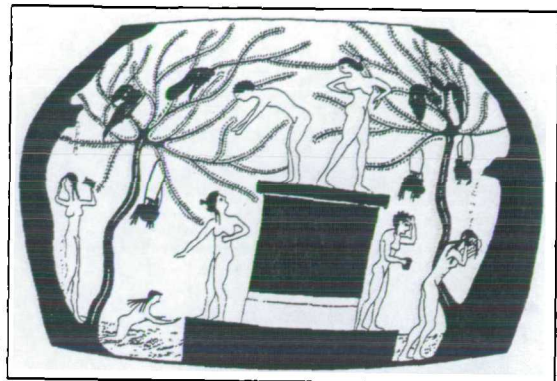
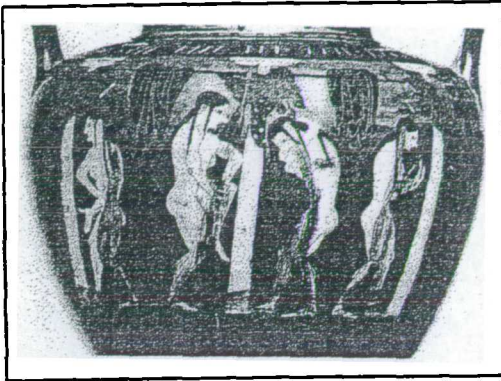
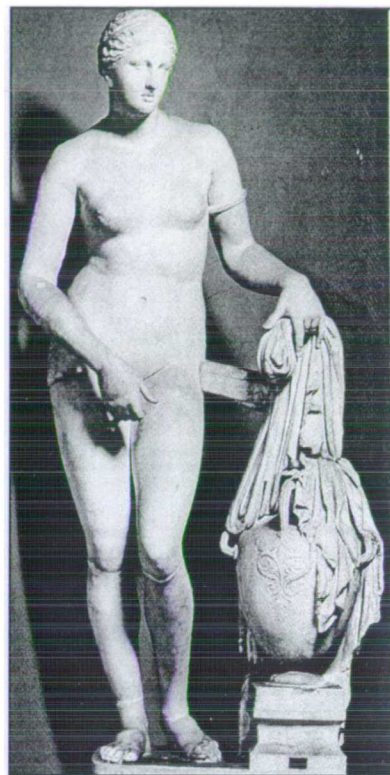
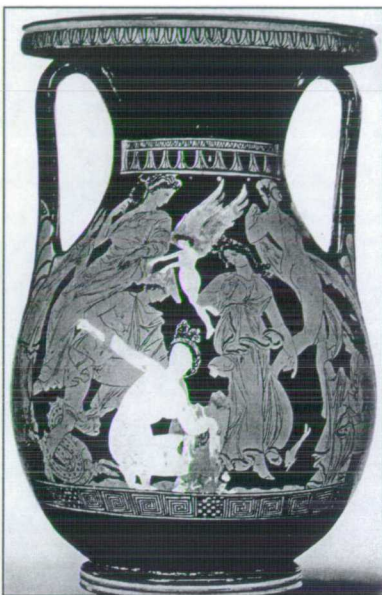


PLATE 17



APPENDIX A. GLOSSARY

This glossary comprises special terms used in modern waste management, archaeological terms that have been used by different archaeologists in different ways, as well as ancient Greek words, either in English or in Greek, that cannot easily be translated. All of the less common English versions of Greek *termini technici* written in *Italics* should be listed in this glossary.

Abfall

The German word Abfall derived from the middle High German word 'abeval' and the middle Low German and middle Netherlandish 'afval' and means anything detached or fallen apart (Grimm & Grimm 1854a, 36, Braun 1983, 222). It is akin to the verb *abfallen* (Grimm & Grimm 1854b, 36-7) and the adjective *abfallig* (Grimm & Grimm 1854c, 37). However, in contrast to the noun, the verb and the adjective have negative connotations. Nowadays Abfall and Müll are used synonymously, although they originally denoted different things.¹

Adonia (Ἀδώνια)

A private festival celebrated by courtesans to remember the short life of Adonis and to mourn for him. It was central for this ritual to carry the gardens of Adonis (Ἀδώνιδος κήποι) to the top of dwellings and expose them to sun, so that they would flower quickly, and, then, remove and dispose of them.

Agency

The concept of agency is used in the sense of Giddens (1984, 14) as a subject's capacity to 'make a difference'.

Agora (ἀγορά)

The term *agora* is used for a public area that played a crucial rôle in the socio-political life of the *polis*. Its emergence was connected with the rise of the *polis* in the second half of the eighth century B.C. (e.g. Hölischer 1998a, 29-45). The *agora* provided room for activities as diverse as cults, political meetings, legal decision making, philosophical discussions, athletic and musical competitions, trading and manufacturing, and erecting public victory monuments. The Younger *agora* of Athens and probably also other *agorai* were marked out by *horos*-stones, which may indicate that the *agora* was understood as a place of legal importance.²

Aidos (αἰδώς)

Sense of shame, bashfulness, modesty.

¹*Original meanings of Müll*: Heyne 1885, 2653-4; Kluge & Gotze 1951b, 506. It should not be confused with the Swiss-German Müll meaning sand (Staub & Tobler 1881, 184).

²*Athens*: Thompson & Wycherley 1972, 117-8; Harris & Tuite 2000. *Implications*: Thalheim 1913, 2414; Hölischer 1998, 29, 37.

Alabastron (ἀλάβαστρον)

Vessel for oil and perfumes (cf. app. C, s.v. perfumes).

Amphora (ἀμφορῆ/ἀμφορεύς)

A vessel serving many purposes, especially the keeping of wine (cf. IV.5.3).

Anathema (ἀνάθημα)

Anything devoted, hence votive offering. The separation between *anathemata* and cult-images is not always clear-cut (Burkert 1988, 33).

Andron (ἀνδρών)

A man's apartment.

Aryballos (ἀρύβαλλος)

Vessel for oil and perfumes (cf. app. C, s.v. perfumes).

Astragal (ἀστρογάλος)

Bone from ankle joint used most frequently as gaming implement.

Astragalomancy

Divination by casting knucklebones.

Astynomos (ἀστυνόμος)

A magistrate at Athens, who had the care of the police, streets, public buildings and supervised the activities of the *koprologoi* (cesspool/sewage pickers). They were ten in number, five for the City and five for the Piraios.

Attic stelai

The so-called Attic *stelai* record the sale of items of the personal property confiscated from Alkibiades and other condemned men in 415/4 B.C. (Pritchett 1953; 1956, Miles 1998, 8 n. 24).

'Away'

An unknown place where people 'throw' things and expect never to deal with them again; in reality there is no such place (Lund & Lund 1993, B.3).

Biodegradable

A substance or material which can be broken down into simpler compounds by micro-organisms and other decomposers such as fungi.³

Bothros (βόθρος)

The term *bothros* has been used in different ways. The term *bothros* has been used by some scholars (e.g. Hutchinson 1935; Lissi 1959) synonymously with the term pit or deposit (Miles 1989, 119). Other scholars used it in the sense of a sacrificial pits, a burial place for votive offerings (e.g. Hansen 1996, 276). Karageorghis & Kassianidou (1999, 182) finally chose used the term *bothros* in the sense of a special deposition of votive offerings without specifying whether the votives were carefully or carelessly deposited. Here, I will follow Hansen's definition. The Greek *bothros* is synonymous to the Roman *favissa*.

Boule (βουλή)

The Council at Athens had a day-to-day responsibility for the state's affairs (Gomme *et al* 1996a). Its membership and powers could vary with the complexion of the regime. The *boule* was the keystone of the democratic constitution, because it prepared business for the Assembly and held together the fragmented administration of the state. It was prevented from dominating by the fact that its members were appointed for a limited term and not from a limited class.

Cauldron

Bowl for tripod.

Closed loop recycling

The use of recycled material to produce a product which is identical to the product which was previously recycled (Waite 1995, IX).

Context

In my framework, I term sanctuaries, settlements, *agorai* and cemeteries contexts.

Debris

In contrast to waste, whose disposal involves human agency, debris may result from natural disasters such as earthquakes.

De facto recycling

The re-assimilation of waste into the use-cycle without the intention of doing so is called de facto recycling. Potsherds, small bones and votives, which were moved together with earth to level an area, so that it may serve as a building ground, may be called de facto recycled waste.

³Lund & Lund 1993, B3. Cf. Waite 1995, XI s.v. organic material

De facto waste

Anything that entered the waste stream without being deliberately discarded.⁴ It may have passed out of the sphere of active use either by loss, natural processes, or by abandonment, deposition or storage. In the latter cases, perceptions of dirt, 'uncleanliness', or 'pollution' may be involved. Under certain circumstances it might appear to be appropriate to recycle de facto waste.

Deme

Country-district.

Demos (δῆμος)

Especially at Athens, the commons, the people, the citizens.

Deposit

A body of disparate materials found together in a well, cistern, pit, dump, or construction fill (Lang 1990, 163). Some scholars seem to use the term 'deposit' only for carefully buried objects (Murray 1997, 499, 500), while others seem to call deposits carelessly discarded objects (Karageorghis & Kassianidou (1999, 182). In this framework, the deposition of artefacts and substances, carried out with or without care, is called deposition. Within Hill's terminology, carefully deposited items may be called ritual waste and objects that had been just discarded, rubbish (cf. I.2.1, s v. Hill)

Dirt

Dirt may include physical and immaterial dirt. Dirt is a social category; it is embedded in a social and ideological web, including social interactions and gendered relations. Its valuation may range from disgust and shame, for example when associated with bodily defilement, to humility and holiness, as in the case of St. Elisabeth of Thuringia (Benz 1979). For Douglas (1995), dirt reflects metaphorically social tensions and asymmetric power relations, in particular.

Dirt-theory

Dirt-theory is the history, sociology and anthropology of conceptualisations of dirt, pollution and cleanliness. It does not regard dirt as an absolute quality, which is inherent in things, but rather as a quality attributed to a substance or item in specific circumstances. That dirt is not a property of certain things has been seen by many scholars, including Vernant (1990, 131) and Sommer (1990). The latter appears to have been introduced the term 'dirt-theory'.

⁴De facto waste in fact is a combination of Schiffer's term de facto refuse (material abandoned at the use location but still having a perceived use value; Schiffer 1976, 87, 93, 111; cf. Binford 1978, 342) and 'provisional refuse' (Schiffer 1987, 65, 66, 68; Haydon & Cannan 1983, 131-9; Rathje & Murphy 1992, 231), i.e. stored waste having a perceived recycling value.

Disposability

Factors that may lead to or prevent disposal, such as availability of the same or similar objects. In a wider sense disposability depends, among other factors, on dispositional factors, the social and cultural realm (medical, agricultural) and context (sanctuary, settlement etc.) within which discarding practices occur, the social and economic status of a person, the particular situation he is in (war, peace etc.) and the particular relationship this person has developed with the object under discussion.

Disposable

Objects and substances that are to be disposed of (cf. *Ex und Hopp*).

Diversion rate

The proportion of material diverted from disposal by recycling (Waite 1995, X).

Durability

The ability of a product to be used without significant deterioration for its intended purpose for a period greater than the mean useful product life span of similar products (Lund & Lund 1993, B.10).

Ekklesia (ἐκκλησία)

The constitution of the *ekklesia* was called in some states (h)eliaia or *agora* or was the dialect equivalent to (h)eliaia (Gomme *et al* 1996b). It denoted the assembly of adult male citizens which had the ultimate decision-making power in a Greek state. There was room for variation, according to the complexion of the regime, in the membership of the assembly and the frequency of its meetings. The extent to which it could discuss business and its freedom in discussing it were limited by the prerogatives of the magistrates and/or a council.

Ex und Hopp

A German expression for using disposables. An *Ex und Hopp*-society, for instance, is a throw-away society.

External recycling

Recycling taking place after an item or material is used and discarded is termed 'external' or 'waste stream recycling' or 'post-consumer recycling'.

Farmyard manure

It comprises everything which was disposed of at a farmstead, country house or house in the city bringing up livestock, namely a mixture of animal dung and urine with straw ('littere manure'), but also kitchen and feasting waste and inorganic matters, such as broken pottery and

roof-tiles (Tivy 1990, 68-9). Its nutrient content is variable, depending on the size, age and condition of the animals from which it is derived.⁵

Fertilisation

The input of nutrients.

Ganosis

Wax-coat over statues to protect them against weathering and to make them bright and shining.

Garbage

Garbage or 'garbelage' used to mean removal of discarded matters (Makins 1995, 524, but Murray 1901). It also denoted wet solid waste consisting of putrescible animal and vegetable waste materials resulting from the handling, preparation, cooking, and consumption of food. Generally defined as wet food waste. Trash, rubbish, and refuse are terms often used synonymously with garbage, but these have different meanings.⁶

'Green manure'

When a plant is ploughed under rather than harvested, the practice of green manuring occurs. In Xenophon's *Oeconomicos* three kinds of green manure can be distinguished, namely shoot from the seed and fallow which were ploughed under, and weeds soaked in water (compost).⁷ Whereas the first two vegetable matters were immediately ready for recycling, the weeds had to undergo a transformation process before they could be used for manuring the soil. Theophrastos (*HP* 8.9.1) associated green manuring with Thessaly and Macedonia, where it may have been a standard practice.

Hetaera (ἑταίρα/ἑταίριον)

According to the orator Apollodoros (D. 59.122) *hetaeras* were held for pleasure in contrast to (married) wives, whose primary rôle consisted of producing heirs. A *hetaera* could be more closely defined as 'one of those women who are hired out' or 'one of those women who run to the symposia for ten drachmas' (D. 59.28, Davidson 1998, 77, 327 n. 11).

Horos-stone (ὄρος)

A *horos*-stone functioned as a boundary stone set up, for example, on sanctuaries and *agorai*, to mark the limits of temple land or an *agora*. Alternatively, it meant a pillar set up on mortgaged property to serve as a bond or register of the debt (cf. e.g. cat 231; Thalheim 1913; Fine 1951).

⁵Composition of farmyard manure: Tivy 1990, 7 figs. 5-6.

⁶Lund & Lund 1993, B.13; Rathje & Murphy 1992, 9.

⁷Green shoot from the seed: Xen. *Oec.* 17.1. Fallow: Xen. *Oec.* 16.12. Cf. Theophr. *HP* 8.9.1. Weeds soaked in water: Xen. *Oec.* 20.11.

Hydria (ὕδρία)

A water-pot or a pitcher.

Internal recycling

Recycling taking place within manufacturing processes is called 'internal recycling' or 'under-roof recycling'. When gaps between two stone walls were filled with the manufacturing debris of the stones which were used to build the walls, as in Smyrna, internal recycling occurred.

Kalpis (κάλπις)

A vessel for drawing water, a pitcher.

Kantharos (κάνθαρος)

A drinking-cup.

Katadesmoi (κατάδεσμοι)

The Greek term for defixiones, binding spells.

Kepos (κῆπος)

Kepos may be translated as garden. The majority of Greek gardens of the classical period were located outside the city, either in the suburban areas near the city walls or further away in the farming regions (e.g. Wycherley 1960, 65). A *kepos* was either a part of a private household, a farmstead, or a gymnasium or belonged to a sanctuary (Carroll-Spillecke 1989, 82).

Kopros (κόπρος)

Kopros may be best translated as fertiliser in terms of its agricultural use in settlements and sanctuaries (cf. III.2.4; IV.3.4). If *κόπρος* is examined in terms of its composition, it seems to comprise not only animal and human excrement, but almost any decomposed organic substance (Foxhall 1998a, 38; II 1.3). When collected in a certain place, it may also comprise all sorts of other domestic and 'industrial' waste, including kitchen waste, table scraps and left-over and by-products of the processing of olive oil.

Koprolōgoi (κοπρολόγοι)

Koprolōgoi remove *kopros* (human and animal waste) from the streets of the city of Athens and the Piraios (cf. app. E, s.v. settlement; II.4.2). They are most likely running a private enterprise and were hired by households and perhaps also by the *polis*-authorities to keep the streets clean (II.3.3).

Kore (κόρη)

Representation of a girl or a woman. Statues of *korai* were often found in archaic sanctuaries. They depicted humans and perhaps occasionally also deities.

Kottabos (κότταβος)

A game in which the wine-dregs are thrown at a target. The player often dedicated his/her toss to someone with a view to amorous success (cf. Ath. 487D E; 665A-69E; III.1.3).

Kouros (κούρος)

Representation of male figure found in cemeteries as grave markers and in sanctuaries as votive offerings. They are typical for the archaic period.

Krater (κρατήρ)

A bowl in which the wine was mixed with water, and from which the cups were filled.

Kylix (κύλιξ)

Drinking vessel.

Lebis (λέβης)

A kettle or a basin.

Lekane (λεκάνη)

A dish, pot or pan.

Lekanis (λεκανίς)

A little dish, or pan, platter.

Lekythos (λήκυθος)

Flask or bottle for oil and perfumes (cf. app. C, s.v. perfumes).

'Littered manure',

Animal dung is called littered manure, when straw and other plant material used as bedding in stables and pens are soaked with urine and mixed with animal *kopros* (cf. Alcock *et al* 1994, 15).

Louteria (λουτήρια)

Louteria denoted wash-basins which served for washing oneself (λούειν). They were found in houses, baths, but also in sanctuaries (Pimpl 1997, 7-8).

Maenad (Μαινάς)

Maenads were also called Thyiades. They were woman inspired to ecstatic frenzy by Dionysos (Moraw 1998).

Manure

The term organic fertilizer can be used synonymously with manure. Manure comprises wastes and residues from crops, livestock and humans. Due to the depositional processes of manure, inorganic substances, such as sherds and roof tiles, are added to it. In comparison to inorganic fertilizer, manure is relatively high in carbon, but low in nutrients (Tivy 1990, 68).

Megara (μέγαρο)

Fissure or, more specifically, pits sacred to Demeter and Persephone, into which, among other objects, young pigs were let down during the Thesmophoria.

Megaron (μέγαρον)

This term has several more or less related meanings. It is used for a particular type of building, but also for the large room or the hall of a building (Wycherley 1976, 180-3).

Mixed fill

Fill containing either waste from different contexts or activities such as manufacturing and consumption waste.

Mnemata (μνηματα)

Memorial monuments for dead people.

Multiple use

The multifunctional and creative usage of artefacts, ecofacts or architectural structures, which were not reclaimed from the waste stream, may be called 'multiple use'. Though multiple use and recycling differ in the kind of elements used (waste objects versus elements still in the use-cycle), they have one important feature in common; they both involve a sense of seeing multiple properties in elements. Multifunctionally used things include a table as a protective shield, a ποδανιπήρ (foot-basin) as an urinal, or a basket as a seat.⁸

⁸Hom. *Od.* 22.74 (table as shield); Hdt. 2.172.4 (uses of a ποδανιπήρ); statue by Lyippos depicts a person seated on a basket (Woodford 1990, 59 n. 2,300). Cf. *selected literary evidence*: Hom. *Il.* 4.518 (stone as weapon; cf. 5.302-6.582; 7.268-72; 16.411, 578.587.740; 20.285-9; 21.403-), 7.175-6 (helmet as ballot box); 10.498-501 (bow as whip); 12.453-62 (stone as tool for opening gates); 21.30-1 (belt as 'handcuff'); *Od.* 6.128-9 (leafy branch to hide genitals); 1.206 (collect lots in helmet); 12.357-8 (barley substituted by green oak leaves in a sacrifice); 14.10 (top of the wall of the οἶκος of Eumaeus was covered with coping of thorn to prevent people from entering the οἶκος by climbing up the wall); 14.510-4 (cloth and cover for night); 22.362-3 (oxhide from sacrifice used for hiding away); *h.Merc.* 25-38 (h. 4 shell of a living tortoise (ὄστρακον) perceived as a body for a lyra by Hermes parr; cf. Vierneisel & Kaeser 1990, cat. 39.7 (vase painting), 79-86 (shoes made of fresh, young wood). 1.9-1 (laurel branch as fire-suck), 111 (sunken trench as fireplace), 127-8 (flat stone as a grill), 4.109-114, twisted strong withes for binding hands); *h.Cer.* (h. 2)

'Objective waste'

In European Environmental legislation, it means discard which was disposed of due to culturally and socially agreed value-systems or legislative provisions issued by the state. The requirement to dispose of waste is nowadays primarily understood in terms of dangerous substances which might affect the public weal and, in particular, the environment.⁹ With respect to the Eliasian framework and Corbin's book, however, the aspect of power relations involved in the construction of cultural and social necessities and requirements is strategically far more interesting for an analysis of ancient Greek waste management practices.

Oikos (οἶκος)

The term *oikos* has many meanings, including the estate, the household or household affairs, or family (Pomeroy 1995, esp. 41).

Oinochoe (οἰνοχόη)

A cup or can for ladling wine from the *kratér* into the cups

Olpe (ὄλπη)

A vessel for pouring out liquids.

Onthos (ὄνθος)

In contrast to *kopros*, *onthos* is bodily waste from inside the body. More specifically, it bodily waste from inside the intestines of sacrificial beasts. In this thesis, *onthos* is also conceptualised as intestines filled with excrement (cf. II.1.3).

15-6 (Persephone uses a flower as a toy); Hdt. 3.6.1-2 (clay vessels containing various liquids); Amips. fr. 2 (Kassel & Austin; footbasin as λεκάνη for kottabos); Aen. *Tcct.* 18.3-4 sand put into bolt-socket for opening doors secretly); Ar. *Ach.* 588 (feather for vomiting); *Ec.* 677 8 (desk for speakers turned into stand for cups and beakers), 1107-12 (woman pictured as a living funeral lamp); *Lys.* 745-52 (metal object used to pretend pregnancy); *Nu.* 1237 (Pasion's stomach would make an excellent wine skin when salted); *Pax* 269 (pitched jar turned into bedpan), 1228 (brass plate turned into a bedpan), 1244-5 (trumpet reworked as kottabos), 1261-4 (spear as vine-props); *Pl.* 540 (big stone used as a pillow); *Ra.* 702 (leek as weapon); *V.* 97-9 (doorway as writing ground), 349 (purple as voting instrument), 308 (bough as weapon); Arist. *Rh.* 1373B (stolen object changed in form or composition so that it can be used without being recognised); *X. Oec.* 19.13 (clay is applied to tips of plants to protect them); *D.* 60, cited in Murray 1966, 164 (dry watercourse as road); Ath. 667E-F (foot-walker for kottabos); Paus 4 17 1 (sacrificial knives and *obeloi* used as weapons to defeat intruders). Cf. *selected archaeological evidence* - archaic Caeretan *hydria* (Louvre E 701; *pithos* used for hiding away); depiction on archaic vessel of sharp *cyphora* used by women for masturbation (Dierichs 1997 fig. 104); classical *hydria* (*ebis* used as urinal cat 153); classical marble metope on the Temple of Zeus at Olympia and on the Temple of Hephaistos at Athens Boardman 1990, 7 nos. 1705-6; *pithos* used for hiding away); roof tiles laid vertically against an exterior wall of a building at Halieis to protect it (Ault 1994a, 40 with n. 24).

⁹Cf. e.g. the German *Abfallgesetz* paragraph 1 issued in 1986 and the German *Kreislaufwirtschafts-/Abfallgesetz* paragraph 3 issued in 1996. Both laws are German implementations of the European Council Directive.

Ostrakon (ὄστρακον)

Although *ostrakon* means, in ancient Greek, potsherd in general, it is used here for sherds recycled for ostracisms only.

Ostrakophoria (οστρακοφορία)

Voting with *ostraka* with the view to expel a bad politician. *Ostrakophoriai* were held at Athens, Argos, Megara and Miletos.

Perirrhanteria (περιρραντήρια)

Perirrhanteria contained water with which one could sprinkle oneself (περιρραίνειν). In contrast to *loutéria* they were exclusively used for cult activities (Pimpl 1997, 5, 7-8). Thus they were situated at the entrance of sanctuaries.

Pithos (πίθος)

A large storage vessel, especially for wine.

Polis (πόλις)

This term may be best translated as 'city-state'. The *polis* is the characteristic form of Greek urban life (Hansen 1997). Following Murray (1996), the main features of a *polis* are small size, political autonomy, social homogeneity, sense of community and respect for law. Ruschenbusch (1984; 1985) has counted at least 750 *poleis* in the core area of the Greek world alone, and calculated that an average *polis* had a territory of only 25-100 km² and an adult male citizen membership of no more than 133-800.

Polos

A head-gear for women, which is said to signify divinity.

Post-consumer recycling

cf. external recycling

Primary waste disposal

Discarding of objects and materials at the location of their use or at activity-related locations (cf. Schiffer 1972, 161-2; 1987, 33-40)

Psykter (ψυκτήρ)

A wine-cooler.

Pyxis (πυξίς)

Box of ox-wood, especially used for keeping ointments and cosmetics (cf. app. C, s.v. perfume).

Realm

In contrast to context, realm does not denote a place, but rather an aspect of life, such as medicine, religion, magic.

Recyclability

Factors that may lead to or prevent recycling, such as ease of recovery, availability of raw materials, size of the object(s) under discussion. In a wider sense recyclability depends, among other factors, on dispositional factors, the social and cultural realm (medical, agricultural) and context (sanctuary, settlement etc.) within which recycling practices occur, the social and economic status of a person, the particular situation he is in (war, peace etc.) and the particular relationship this person has developed with the object under discussion.

Recyclable

Items and materials that still have useful physical or chemical properties after serving their original purpose and that can, therefore, be reused or remanufactured into additional products. Waste materials that are collected, separated, and used as raw materials (Lund & Lund 1993, B.28. Cf. Waite 1995, XII).

Recycling

The reassimilation of solid waste and by-products of manufacturing processes (*Reststoffe*), which would otherwise be discarded, into the manufacture-consumption cycle (Koch & Seeberger 1986, 252). Recycling may take place within manufacturing processes (internal or under-roof recycling; cf. waste exchange). Alternatively, it may take place after an item or material is used and discarded (external or waste stream recycling). In this thesis recycling comprises the following three activities: reuse (which means using an item again without changing its physical form for a purpose identical or similar to that of its first use); reutilisation (which means using items and manufacturing by-products for purposes other than their original); material reprocessing resource recovery (which means the treatment of recyclable materials in which the form of the material is changed by chemical, biological or physical processes in order to produce recycled materials).¹

¹ Cf. Darnay & Franklin 1972, 3; Waite 1995 XI. However, the definition of secondary materials given by Schiffer 1987, 29 is not very useful, as he does not distinguish between items and materials.

Refuse

In modern waste management, refuse comprises both the dry discard (trash) and the wet (garbage), but no demolition debris (Rathje & Murphy 1992, 9, but Lund & Lund 1993, B.17). In Schiffer's behavioural model, refuse denotes the post-discard condition of 'elements'. Schiffer (1972; 1987, 58) distinguished formally, informally and provisionally discarded 'elements'. Formally disposed of 'elements' may be further distinguished according to their location. Refuse discarded at the location of its use or at activity-related locations is termed primary refuse, while refuse which is discarded elsewhere is called secondary refuse. In this framework, it is used in its original sense as refused matter.¹¹

Reusability

The ability of an item to be used more than once in its same form (Lund & Lund 1993, B.31).

Rhyton (ῥυτόν)

A sort of drinking-cup.

Rubbish

In modern waste management, inorganic solid waste (excluding ashes), consisting of both combustible and noncombustible waste materials is called rubbish (Lund & Lund 1993, B.32; Rathje & Murphy 1992, 9). In Thompson's (1979) framework, rubbish denotes an artefact with no socio-economic value.

Sacred laws (leges sacrae)

Sacred laws regulate the management of sanctuaries and provide visitors and cult personnel with behavioural rules.

Scavenging

The uncontrolled and, in the case of sanctuaries, unauthorised removal of valuable materials at any point in the solid waste management system (Lund & Lund 1993, B.32).

Secondary (raw) material

A recycled material that is used in place of a primary or raw material in manufacturing a product (Lund & Lund 1993, B.32; Waite 1995, XII).

Secondary waste disposal

Waste being discarded in a location other than where it was produced or used is called secondary waste disposal (cf. Schiffer 1972, 161-2; 1987, 33-40). It comprises dumping in rivers, land fillings or abandoned parts of a building.

¹¹Murray 1910b, 358. Cf. Murray 1910a, 856 (rubbish ; Euling 1936, 1231 (*Unrat*)).

Skyphos (σκύφος)

A cup, beaker, can, or flagon for wine.

Solid waste

Garbage, refuse, and other discarded solid materials, including those from agricultural operations, and from community activities (Lund & Lund 1993, B 32-3)

Sphyrelaton (σφυρήλατον)

Statue or any other artefact made of flat metal sheets, in contrast to those of cast metal.

Stamnos (στάμνος)

An earthen jar or bottle for racking off wine.

Strigil (στλεγγίς, ξύστορα)

A metal instrument used for scraping of the dirt, in particular the στλεγγίσματα (oil-dust-sweat mixture) from the body of athletes. Its earliest depiction as a cleansing implement dates back to the end of the sixth century (Kotera-Geyer 1993, 6), but it may have been known as such since the beginning of the sixth century B.C., in the Peloponnese, Rhodes and Cyprus (Kotera-Geyer 1993, 10, 76, 144; Raubitschek 1998, XXIV, 460, 462).

Stele (στήλη)

An upright stone or slab bearing an inscription, a grave-stone.

'Subjective waste'

In European environmental legislation, it means discard which was intended to be or actually was thrown away due to individual conceptualisation of value- and classification-systems.

Syssitia (συσσίτια)

Common meal or meal consumed by a specific social group.

Taenia (ταινία)

A band, riband, fillet.

Telmarch (τέλμαρχος)

A magistrate who operated in fourth century Thebes, perhaps even earlier (Plu. *Mem.* 811B, app. G.1). His tasks included the supervision of the alleys for the removal of *kopros* and 'the draining off of water in the streets'. His work may be compared to that of the *astynomoi* in classical Athens.

Temenos (τέμενος)

After Homer, 'the piece of land cut off' had a religious sense. In the classical period, land belonging to the gods fell in practice into two categories. The first was that which was genuinely abstract from human use and left uncultivated; the second, also termed sacred, was lent out for agriculture like any other land (Parker 1996, 160-3).

Tertiary waste disposal

The dumping and relocation of secondary waste is called tertiary waste disposal.

Trash

A term used for dry solid waste material, excluding ashes (Lund & Lund 1993, B.37; Rathje & Murphy 1992, 9).

Under-roof recycling

cf. internal recycling.

Waste

Waste derives from the Latin word *vastus*, meaning unoccupied or desolate, akin to the Latin *vanus* (empty or vain) and *vastare* (to lay waste) and to the Sanskrit word for wanting or deficient. Thus, it originally signified huge, empty, barren, useless, hostile to man (Skeat 1882, 698; Lynch 1990, 146), but it may also mean waste matter in the sense of refused matter (Murray 1928, 138). In this framework, it is a collective term for anything formally discarded because it is broken, inappropriate to carry out its utilitarian or symbolic functions, has fulfilled its useful purpose, is regarded as dirty or polluted, or is unwanted, and anything which passed out of the sphere of active use, because it is considered unwanted or useless at a particular time in a particular situation, e.g. left-overs and by-products. Waste is generated at every stage of material use.¹² As Hodder and Thompson pointed out, waste is a social category. It may include material and immaterial things, such as potsherds, ideas and word (cf. the phrase 'to talk rubbish'). It also comprises objects and items as well as architectural features and places or people, who Thompson (1970, 918; 1979, 93) summarised under the term 'social rubbish'.

Waste management/ integrated solid waste management

A practice of using alternative techniques to manage and dispose of specific components of the municipal solid waste stream. Waste management alternatives include source reduction, recycling, and landfilling (Lund & Lund 1996, B.4).

¹²Cf. Schiffer 1972, 160 (for de facto waste only); Smith 1976, IX; Bridgewater 1979, 3; Murray 1980; Schiffer 1987, 28.

Waste stream

In waste management, the total amount of waste produced by a society, or by some unit of society such as a household or a city (A hworth 1991, 418).

Waste stream recycling

cf. external recycling

APPENDIX B. SOCIAL MODES OF DIRT

The intersection of marginal people with cleanliness, dirt and waste is explored in this section. Under marginal human beings I understand socially and economically under-privileged people (e.g. δειλοί), cultural fringe groups, including the Cynics, as well as those socially accepted and only temporarily pushed to the margins of society by individuals or groups of individuals due to social transgressions or personal dislike.¹ The significant link between social and physical dirt is examined with respect to the kind of tasks performed by marginal people, their working and living conditions and their production of bodily emissions, including sweat, urine and excrement. I also cast light on the active way in which notions of dirt were used to express the low esteem in which a person was held and to negotiate, reaffirm or transform the social status of individuals or social groups. In particular, in the last section I draw on Douglas' notion of dirt as 'matter out of place' and argue that the emission of sweat and excrement outside socially acceptable places characterised certain groups of marginal people, including old men and people who had to work physically to earn their living.

REMOVING OTHER PEOPLE'S DIRT AS ONE'S PRIMARY TASK

Removing other people's dirt and dirty waste as one's primary task indicates a low social position in ancient Greece and used to be confined to slaves and free people performing menial wage labour, from the Homeric to the classical period.² In the Homeric times, much of the menial labour related to cleansing with water was women's work.³ In the *Odyssey*, almost all of the cleaning activities of the *oikos* were left to the female servants of the house.⁴ They also served either in groups (δμωαί) or individually (λοετροχόος γυνή) whether as bathing assistants for male guests, newborn babies or the dead bodies of warriors, or providing water for the hand-washing, and for foot-baths.⁵

¹The term δειλοί was used by Thgn. 58 (Edmonds) in contrast to ἀγαθοί and ἐσθλοί (Thgn. 57, 58) designating socially privileged people. What is meant by a πέννης has been much discussed. Jameson 1992, 143, 145 argued persuasively that this term does not seem to refer to paupers and indigent in a modern sense, but more precisely to those who have to work for a living, since a πέννης could have had slaves.

²*Menial labour*: Brock 1994.

³*Women and water*: Lefkowitz 1982, 27.

⁴Hom. *Od.* 20.149-62 (female only), 22.433-77 (male servants perform the heavier works) *Contra*: Hom. *Od.* 1.109-12.

⁵*Guest*: e.g. Hom. *Od.* 8.433-7 (δμωαί of Alkinous). Cf. e.g. Hom. *Il.* 5.905 (Hebe) for the divine realm. *Newborn*: Hom. *h. Cer.* (h. 2) 227, 235-8 (Demeter disguised as a τιθήνη), 285-91 (τροφοί), 291. In the divine sphere, newly born gods were washed by goddesses (Hom. *h. Ap.* (h. 3) 120-2); less clear in Hom. *h. Merc.* (h. 4) 268). Cf. Ginouès 1962, 235-8; Wohrle 1996, 159 n. 18. *Corpses*: e.g. Hom. *Il.* 18.343-53 (ἐτάροι of Achilles for Patroklos); 24.582, 587-8 (Achilles' δμωαί for Hektor's corpse. *Hands*: e.g. Hom. *Od.* 10.368-70 (ἀμφίπολος). *Feet*: e.g.

It would be an oversimplification to state that the task of assisting with bathing was allotted only to female slaves. However, the youngest daughters of aristocratic families, and sometimes even goddesses and gods, were involved in the κομιδή of prestigious male guests or dead people. These exceptions may be explained in terms of the high esteem in which the bathed person was held.⁶ In the majority of cases, however, the nobly born head of an *oikos* would restrict her duties to those of supervision and the delegation of tasks to the servants, as described in the palaces of Hektor and Alkinous (Hom. *Il.* 22.442-4; *Od.* 8.426-57).

Cleansing practices, which some high status women regarded as being prestigious enough to be involved in, albeit with the aid of their female servants, included the washing of textiles.⁷ This interest may be explained on the basis of the social significance of textiles. They were an important indicator of social status and one of the most important means for high status women to gain prestige.⁸ A further reason why the cleansing of textiles was regarded in some households as being too important a task to be left to the servants may be seen in the fact that freshly washed garments were part of an appropriate appearance of the Homeric élite and contributed to the good report of a family.⁹

In the *Odyssey*, the performance of cleaning as an everyday activity and/or to earn one's living was also typical for men of low, including servile, social status. Thus, Odysseus disguised as an old beggar thought it appropriate to serve nobly born people as one of their κήρυκες or θεράποντες, whose functions included the mixing of wine, the cutting of meat, the splitting of firewood and the cleaning of the tables before feasts.¹⁰ Other cleaning tasks which meaner men (ὑποδρηστήρες) carried out for the noble (τοῖς ἀγαθοῖσι παραδρῶσι χέρηες) included the cleaning out of the stables.¹¹

Hom. *Od.* 19.317 (ἀμφίπολοι).

⁶High esteem in which Sarpedon was held by Zeus in the case of Apollo (Hom. *Il.* 16.667-70, 678-80); Telemachos in the *oikos* of Nestor in the case of Polykaste (Hom. *Od.* 3.464-7); token of esteem and love in the case of Kalypso (Hom. *Od.* 5.264), and humiliation as in the case of Kirke, since she did not offer him and his comrades the body care due to strangers as part of the welcoming procedure, but only after her power was broken (Hom. *Od.* 10.360-5, 449 vs. Hom. *Od.* 10.358). The significance in Hom. *Od.* 4.252-3 (Helena) is not quite clear to me. Cf. Hiller 1980; Wohrle 1996, 159.

⁷Hom. *Od.* 6.25-33, 57-75, 85-98 (with more generalising implications), but Hom. *Od.* 15.419-20 (servants do the laundry at the *oikos* of Ktesios). Hom. *Il.* 22.153-6 referred to Trojan w men doing their laundry outside of Troy in washing-tanks, but their social status is unclear.

⁸*Status*: e.g. Hom. *Od.* 3.348, where a poor person is characterized as ἀνείμων; more general Mansfield 1985; Barber 1991, 106. *Admiration*: Hom. *Il.* 3.125-7; 22.440-1.

⁹*Clean clothes*: app. D with n. 35

¹e.g. Hom. *Od.* 1.109-12 (without the splitting of firewood); 15.322-4 (without cleaning activities), 330-3.

¹¹*Αγαθοί*: Hom. *Od.* 15.319-25 *Stables*: Hom. *Od.* 17.223.

The only cleansing task in which a male head of the *oikos* was actively involved was the symbolic cleaning out of the *oikos* with special purificatory agents (cf. II.2.1). In all other cases, his role was restricted to the supervision of cleaning activities. His primary concern seems to have been the cleanliness of the stables; in exceptional circumstances, he also seems to have taken over the organisation and supervision of cleansing operations within the *megaron* (Hom. *Od.* 22.430-94, esp. 435-7).

The removal of dirt and dirty waste was still disreputable work in the archaic and classical periods. The tasks of bath-attendants in private and public baths, such as the βαλανεύς (bath men of public baths), βαλανεύτρια (manageress), and ἀλείπτρια (masseuses), were generally regarded as demeaning.¹² When the female head or the youngest daughter of an aristocratic family was involved in personal cleanliness of one of the male family members, this cleansing activity carried different connotations in classical tragedies.¹³ However, this cannot be called socially prestigious, as men never prepared a bath for their wives. Occupations relating to the personal cleanliness of the high-status domestic animal, the horse, were allotted to the ἵπποκόμος, a domestic servant.¹⁴ In addition, the cleaning of clothes seems to have been the exclusive domain of women, either washerwoman or female servants (*IG* I² 473; II² 2934; Paus. 3.25.8). The Pan-painter made this point quite explicitly, as he created an opposition between the male and the female realm of activities, choosing a laundry-scene with two women, of whom one is characterised by her hairdress and her clothing as a female servant, as a counterpart to the conversation scene with two men:



Fig. 10 The Laundry (Paris, Louvre G547)

¹²*Bath-assistant*: Hipp. *Epid.* 4.32. *Public baths*: Philipp 1990, 88; Brock 1994, 341 with n. 32, add *Ar. Eq.* 1400; *Ra.* 709-10. Cf. Anderson 1991, 151 with n. 10.

¹³e.g. *A. A.* 5, 1109 (Klytaimestra); *E. H.* 5, 1383-4 (Helena); in the case of Oedipos, his daughter took over the assistants of bath assistants (*S. OC* 1600). Cf. *Ath* 10E (daughter of Kokalos).

¹⁴*X. Eq.* 5.1-2, 6-7, 9; 6.1-2, 7; *Men. Dys.* 584-5.

As in the Homeric period, tasks associated with the provision of a clean environment (for other people) tended to be carried out by people of servile status. Demosthenes (18.258, cf. D. 19.200), for example, stated that the tasks of sponging the benches of a grammar-school and sweeping a school-room were carried out by a person stigmatised by his abject poverty and his social position as a menial rather than a free born. Another occupation of low social status was the removal of *kopros* from stables and cesspools as a permanent occupation.¹⁵ Jobs involving direct contact with bodily waste were considered so dirty and disgusting that household slaves are said to have regarded them as being beneath their dignity (e.g. Ar. *Pax* 9-16). According to Aristophanes, the main reason for these feelings of revulsion against dealing directly with κόπρος was its intolerable stench.¹⁶ As Aristophanes (*Pax* 33, 38) also called the dung beetle a 'smelly creature', the stench of the *koprologoi* may be called social in Corbin's (1996, 39-40, 142-50, 232) sense of the term. The cleaner job of controlling the work of the cesspool/sewage pickers (*koprologoi*) was far more prestigious, although, the position of a *telmarch* was not considered to be as prestigious as other governmental posts at Thebes.¹⁷ From the fact that the Athenian governmental officers (*astynomoi*) had public slaves on hand to remove the bodies of persons who died on Athenian roads (Arist. *Ath.* 50.2, cf. app. G.1), it may be deduced that this task was considered too dirty to be carried out by the officers themselves.

It is noteworthy that cleansing routines at sanctuaries seem to have been carried out nearly exclusively by slaves in Greek antiquity.¹⁸ By contrast, highly prestigious cleaning practices, including the symbolic purification of altars before sacrifices and of cult-statues, were performed by priests, *astynomoi* and people of the upper social classes (cf. app. E, s.v. sanctuaries). In fact, the maintenance of the cult-statue of Zeus at Olympia was said to have been such a honourable task that the noblest families

¹⁵Ar. *Pax* 9-10 (mixing both hand and carrying it) on the sexual references cf. Henderson 1975, 193 no. 418). Cf. the socially stigmatised sewer hunters in Victorian London (Porter 1994, 285-7). - Pindar's (*O.* 10.28-30) much earlier passage on Herakles' service to Augeias, king of Elis, cannot be taken as evidence that cleaning stables was considered a menial task in the fifth century B.C. It is only Diodoros (4.13.3. Cf. Woodford 1990, 57) who explains that Augeias intended to insult Herakles by making him clean his stables and shovel out the dung himself. Herakles, however, devised his ingenious engineering strategy of diverting the river to run through the stables, thus purging them, in order to foil Eurystheus' intended insult. In contrast to Diodoros, Pindar's notion of this episode is nothing but an allusion, because he does not specify the exact nature of the task, the means Herakles used and the motivation of Eurystheus for setting him to clean the stables. It is, therefore, unclear whether Pindar refers to Herakles' cleaning of the stables of Augeias as a menial task or whether he refers to it as a deed whose purpose is a civilising one, cleansing land and sea, a point made earlier by Pindar (*N.* 1.61-3).

¹⁶Ar. *Pax* 16-25 contains three references to the horrible stench from dung from the cesspool. On the social conceptualisation of the ragpicker in 19th century France as an archetype of 'stench' cf. Corbin 1996, 146, 196.

¹⁷Plu. 811B. In Athens, however, the inspector of the *koprologoi* was so prestigious that generals wanted to be entrusted with it (D. 25.49).

¹⁸Graf 1978, 61-2; Bomer 1990, 216, but *IG* XI.2.146.76-77, cf. app. G.1 Hammond & Walbank 1988, 202.

competed for it (cf. Parker 1996, 27). This suggests that context alone did not determine attitudes to, and valuation of, cleansing activities. The frequency and the degree of symbolism involved in a cleaning activity may, therefore, be called important factors affecting the social value of cleansing practices and determining which social group would perform them. Thus, the cleansing of textiles and cult-statues as well as the removal of pollution were considered too prestigious to be left to the low social orders.

WORKING AND LIVING WITH DIRT AND WASTE

In the Homeric epics and classical comedies, people covered with coal-dust or begrimed with smoke due to their occupation seem to have been marginal and despised people; other people disliked even looking at them.¹⁹ The social status of 'urn-women', whose profession involved contact with dead substances, is not known (Pl. *Min.* 315D). It is, however, quite likely that their occupation was not held in high esteem due to their contact with dead materials. Better documented is the social ranking of *hetaeras* and the classification of their occupation as dirty, at least by some individuals.²⁰ It is also possible that at the heart of the stigmatisation of the mentally disabled was the understanding of them as defiled and dirty humans, since the mentally disturbed were cleansed with water to cure them.²¹

In the classical period, dirt could be as immaterial as stench. Labours involving contact with stinking substances were categorised as demeaning. The social stench of *koprologoi* has already been mentioned. Although little is known about the social recognition of tanners and tanneries, I think it is reasonable to assume that the former also were an 'archetype of stench' in Corbin's (1996, 142-50, esp. 146, 232) sense of the term, because there are a number of references to the unpleasant and vile odours set free in tanneries.²² It is reasonable to link the stench associated with tanners and

¹⁹Allusions on the dirty work of coal miners and blacksmiths can be seen in the Greek terms ὤ Μᾶριλάδη (son of coal-dust) and μᾶριλοπότης (coal dust gulper). On smoke as a socially stigmatising feature of appearance cf. Hom. *Od.* 13.435. On smoke as means to annoy people cf. D. 54.4.

²⁰*Spatial and symbolic location of brothels outside the city-walls:* e.g. Davidson 1997, 80, 83-91. *Prostitutes:* e.g. Davidson 1997, 73-136, esp. 78-83, 225 with n. 12. *Dirty occupation:* e.g. Ar. *Eq.* 1280-5.

²¹*People marginalised by their disability:* e.g. Garland 1995; Vlahogiannis 1998. *Cure:* e.g. Ar. *V.* 118; S. *Aj.* 5, 655.

²²*Impurity of tanners in pre-classical Greece* e.g. Artem. *Onir.* 1.51 (59, 4 Pack, cited in Parker 1996, 53). *Location of tanneries in post-Classical Greece:* Artem. *Onir.* 1.51; 2.20; 4.56. *Location of tanneries in pre-Hellenistic Greece:* not Ar. *Eq.* 314-6, 869-71, as stated by Blumner 1875, 262 n. 1 and not the so-called Holy House as stated by Lauter 1985, 166 according to Lang 1996, 134. The location of Kleon's tannery in the district Klydathen, north-east of the Akropolis and the location of Lysias' and Polemarchos shield factory at Piraios are too imprecise to deduce whether they were location in or at the edge of each district (Forbes 1966, 50-1). *Stench:* Blumner 1875, 262 n. 1; Burford 1985, 93.

tanneries with the use of bodily emissions in the process of tanning.²³ If so, some of the insults which Aristophanes (*Ef* 3 19) hurled at the tanner and leather-seller Kleon, such as being a βορβοροτάραξις churner of dirt, may have alluded to his contact with urine.

Living with dirt, waste and recycled objects is usually associated with poverty (πενία) and a low social status in many aspects of life, including outer appearance, company, the kind of money earned, diet and housing. Three of these aspects will be discussed in more detail in this section: outer appearance, diet and housing.

Outer appearance

As social position and hierarchy were visibly codified in ancient Greece, from the Homeric to the classical periods, a significant characteristic of the impoverished was their bad outer appearance. Particular emphasis was given to poor people's appearance by Homer (app. D) and Aristophanes' *Plutos* (Groton 1990, esp. 22) to reflect and perpetuate their low socio-economic state. A person was classified squalid, shabby or grubby when (1) neglecting the personal cleanliness (being unwashed/stinking), (2) being clad in outworn, threadbare, shabby, dirty and ragged clothes, or in garments made of secondary raw material - for example, an old and shabby ox-hide from a shield - or appropriated things such as the wrapping for the laundry, and/or (3) had accessories which were made of cheap material or mended, as Odysseus' wallet, which was said to have been full of holes and slung by a twisted cord.²⁴

Diet

For some authors bad dressing was inevitably linked to lack of food, a bad diet and, what may be called after Oikonomides (1986, 43) 'garbage food'.²⁵ Typical

²³Classical: e.g. Thphr. *CP* 3 9 3; 3 17 5. Post-classical: Forbes 1966, 19, 48, 66 n. 32, 75 n. 222-3. *Pigeon s, hen's and dog's dung* Forbes 1966, 4

²⁴Expressions for squalid: e.g. Hom. *Od* 24.250 (αύχμειν) *Ar. Nu.* 920 (αύχμειν), 1120 (αύχμος), *Pl.* 84 (αύχμειν), 169 (αύχμηρος), *Anaxandr. fr.* 34.6 (Kock; αύχμειν). Cf. app. D; Taillardat 1962, 315-6 no. 545. Negligence of bodily cleanliness: app. D. *On quality and condition of clothes*: app. D ns.30, 34 *Semon. fr.* 1 A, app. G.1; *Anacr. fr.* 54.1 (Diehl; ap. *Ath.* 533F; *Thgn.* 55 6; *Aesch. Ch.* 28; *Ar. Ach.* 41, 424, 433, *Ec.* 565; *Ra.* 1060, 1065, *Pl.* 266, 540, 714, 842, 882, 890, 935, 950, *S.* C 1595, *Ph.* 35, 270; *E. El.* 180-2, *Hel.* 385, 420, 1535; *Rh.* 710; *Ath.* 533B. Recycling: *Anacr. fr.* 54 2-4 (Diehl; ap. *Ath.* 533F): καὶ ψιλὸν περιπλευρηῖσι δερριον βοός νηπλυτον ειλυμα κακῆς ἀσπίδος. Multiple use: Hom. *Od.* 6 178 9 δὸς δὲ ῥάκος ἀμφιβαλεσθαι ε τι του ειλυμα στερων εχες ἐνθαδ' ἰοῦσα. ('Give me some rag to throw about me, if perhaps you had any wrapping for the clothes when you came here', cited in Dimock 195a). Cheap accessories: *Anacr. fr.* 54.1 (Diehl; ap. *Ath.* 533F). Shabby accessories: Hom. *Od.* 13 437, cf app D. n 30.

²⁵Explicit link. e.g. *E. Hel.* 1284, *Tr.* 4)0-3. Hunger: cf. Hom. *Od.* 17.228; *Mimn. fr.* 2, 11-2 (Franyo & Gan 1981a); *Anacr. fr.* 54 (Diehl; ap. *Ath.* 533F); *Hes. Op.* 301, *Ar. Pax* 740; *D.L.* 6, 40 Poor diet: cf. Hom. *Od.* 14 80-1; 17.12, 228; *S. Ion fr.* 26 (Franyo & Gan 1981a); *Ar. Pl.* 265, 540, 595, *V.* 495, 675-7; *Timocl. fr.* 2 Kassel & Austin); *Alexis fr.* 200.159 (Kassel &

components of the poor man's diet were beans, the poor man's meat (Garnsey 1999, esp. 225) and certain kinds of meals made of barley, though it is disputed whether their condition (raw-baked) or their digestibility divided the upper from the lower classes. Sparkes (1962, 128 with n. 61), for example, stated that the poor classes did not consume baked bread, but *maza*. Garnsey (1999, 222-3) revised the evidence and concluded that *maza* was not eaten exclusively by the poor and barbarians, but also by richer people. The distinguishing factor here between *maza* eaten by richer and that consumed by poorer people was the quality of the wheat: while the highly valued *maza* was light, that of the poor was mixed with chaff and could not, therefore, be digested easily.²⁶ Garnsey's reasoning seems convincing at first, but it does not take into account the explicit references to *maza* as exclusively food for the pauper and for barbarians. From a diachronic perspective (cf. Forbes 1955, 97-8; Moritz 1958), it would be possible to explain the different attitudes towards *maza* in terms of changes taking place in the course of the fifth century B.C., from a social acceptance of light *maza* by the upper strata to its total rejection.

Other social markers were various legumes and pulses among field crops, as well as oak trees and acorns (Jameson *et al* 1994, 266; Foxhall 1998, 37). They provided not only food for the poor, but also fodder for the domesticated animals. This association of social rubbish in Thompson's (1970, 918; 1979, 93) use of the term with animals was not only significant with respect to nutrition, but also with respect to disposal practices of the dead, as I will show under appendix F and III.5.1. In classical comedy, in particular, garlic and onions were picked out as being the main ingredients of a poor diet.²⁷ It cannot be excluded that the strong odour of this food was associated with 'odour of poverty' or 'stench of the poor' (Corbin 1996, 39-40, 142-50, 232), at least in the classical period, since Aristophanes (cf. n. 27) and Xenophon (X. *Smp.* 4.8-9) drew attention to the fetid odour given out by of garlic and onion.

As Garnsey (1999, 215 n. 4, 221) pointed out recently, beans were not dirty for ordinary people, but only for Pythagoreans and Orphics. Food which was commonly categorised as disreputable or polluted food included dog meat and red mullet.²⁸ By eating animals that commonly are tabooed food, including human flesh and

Austin); Antiph. *fr.* 69 (Kassel & Austin); S. *Ph.* 40; Ath. 542F.

²⁶Polioch. *fr.* 2 (Koch); Antiph. *fr.* 226 Koch); Thphr. *HP* 8 4.4-5; Ath. 60.

²⁷Garlic only: Ar. *Eq.* 945; Pl. 253, but X. *An.* 7.1.37. Value of garlic: e.g. Ar. *Eq.* 1095; V. 1170; as part of the diet of the upper class cf. e.g. Hom. *Il.* 11 630; Pl. *Ion* 538C; X. *Smp.* 4.7-8. Onion and garlic only: Ar. *Eq.* 600-1 (diet for *hippeis* during war, which was considered poor). Cf. Egypt, where the diet of workmen consisted of onions, garlic and radishes (Hdt. 2.125 6).

²⁸Dog meat: Ar. *Eq.* 1399; Hippoc. *Morb. Sacr.* 142, 18J. Cf. Parker 1996, 357 with n. 3. Red mullet: Cratin. *fr.* 221; Ar. *fr.* 23 Koch); Hippoc. *Morb. Sacr.* ch I § 13 (Litré 6.356.1).

excrement, the poor became disregarded or polluted 'man-eaters' and 'dung-eaters' themselves (Parker 1983, 357-65, esp. 360).

Out of sheer poverty, men are said to have stolen the meals brought to crossroads for Hekate (e.g. *Ar. Pl.* 594-7). Necessity also made humans 'refuse-eaters': Slaves and other socially underprivileged people used to consume other people's left-overs, such as half-eaten milk-cakes and bits of chicken, from private and public meals.²⁹ Sometimes, the food remains of a very rich household were not always given away for free; at the *oikos* of Demetrios of Phaleron, the cook and caterer received permission to sell the left-overs and to keep the cash for themselves.³⁰ To eat scraps had a negative social connotation and Aristophanes (*Eq.* 48; *Rh.* 1407A) used it in the sense of 'to fob someone off'.

Housing

Living with dirt and waste seems to have been a crucial aspect of the domestic realm of socially underprivileged people. Ancient Greek sources do not focus upon the quality of building material, the condition of the houses, or the structural equipment of dwellings with bathroom and/or latrines as social markers, as Roman sources did (Scobie 1986, 401-7, but *E. El.* 306). This may be explained by the fact that classical Athenians, at least, did not consider their houses an appropriate arena for conspicuous consumption (Walter-Karydi 1994). For ancient Greeks, the part of the city in which people lived (*Ath.* 548A-B) as well as the degree of cleanliness of a room seems to have been far more important and indicative of social status than building material etc. Semonides (*fr.* 7 (West, cf. app. G.1) and Plato (*D.L.* 3.41) did not regard unclean living conditions as socially acceptable and Aristophanes (*Ach.* 71-2) criticised the squalid living conditions of the refugees who lived in *φορυσός* (whatever the wind carries along; cf. app. E, s.v. settlements). Most explicit regarding the association between servants and dirt was Homer (*Od.* 11.190-1), when he stated that servants slept on the bare ground covered with ash. Interestingly, the presence/absence of vermin was not considered a social marker, probably because all *oikoi* were infested by vermin (cf. Davies & Katherithamby 1986, 46-7, 149, 168-76; Beavis 1987, 91-120; 240-2).

The aspect of ancient accommodation which seems to have mattered most to Greeks was the interior of their homes. Poor people's furniture used to be made of

²⁹*Ath.* 149F-150A; *Anaph. fr.* 89 (Kock; ap. *Ath.* 262C); *Epicr. fr.* 5.4-9 (Kock; ap. *Ath.* 262D).

³⁰*Ath.* 542F For a similar practice in 19th and early 20th centuries Europe, where butlers were traditionally permitted to sell candle ends and old bottles, and cork was allowed to sell kitchen 'stuff' such as dripping, bones and chunk of fat, cf. Dawes 1984, 76-9, 135.

cheap material.³¹ It was often characterised as being outworn, broken or rotten, such as people of higher social strata would probably have discarded.³² Broken objects would not be thrown away, if they could still be of some use. Thus, a broken jug was said to have functioned as a stool (*Ar. Pl.* 545). Poverty also made people use natural resources when they were in need for basic furniture such as beds and chairs. The swineherd Eumaios, for instance, could not offer his guests proper seats and covered a bunch of green brushwood with a fleece.³³ Vegetable matters also functioned as a substitute for proper beds.³⁴ These examples demonstrate that socio-economically underprivileged people saw artefacts and ecofacts discarded by others as a resource. They also show that economic restraints may lead to the development of the 'analytical gaze' for objects, which enabled them to use items for purposes other than their original and, thus, to transform their function and meaning. These transformation processes were not socially accepted as creative processes, but were socially stigmatised by the elite.

Neglecting bodily cleanliness and using objects that may be categorised as 'objective waste' were not necessarily exclusively associated with plain economic necessity. The painting of the Underworld by Polygnotos at Delphi, for example, associated the use of broken vessels for fetching water with the status of uninitiated women, playing with the negative social value of making use of waste.³⁵ The Cynics, by contrast, for ideological reasons, chose a life-style characteristic for people that Thompson (1970, 918; 1979, 93) would classify as 'social rubbish'. They tended to neglect their body care and to clad themselves in dirty rags, and they were used to consume food which was commonly held too dusty or polluted to be eaten and to use other people's waste, like Antisthenes, who used the sand-oil-mixture other people had scraped from their bodies.³⁶ Probably the best known example of appropriating an item for a new purpose was Diogenes using an empty *pithos* lying around in the *Metreon* as a kind of shelter during the night, when a cottage could not be found for him.³⁷ The adaptation of this life-style was conceived of by Diogenes Laertios (6.22)

³¹e.g. Hom. *Od.* 20.259 (S. *Ph.* 35 (cup of bare wood). Cf. *Ar. Pl.* 808-15 (ἀεικέλιος δίφρος).

³²e.g. *Ar. Ach.* 450 (basket burnt through by a lamp); *Pl.* 540 (rotten piece of mattering for a bed overlet), 813 (rotten fish dishes).

³³*Provisional seats*: Hom. *Od.* 14.49-50; 16.47. *Proper seats*: Hom. *Od.* 16.408 (ξεστοί θρόνοι), 20.150 (εὐπορήτοι θρόνοι).

³⁴*Simple bedding*: Hom. *Od.* 11.191, 194; 14.530; 20.2-4, 141). *Proper bed* (λέχος) covered with expensive bedspreads such as ῥήγεα and τάπητες, cf. Laser 1968, P15; *Ar. Pl.* 540; S. *Phil.* 33, E. *Hec.* 494, 505.

³⁵For further examples of people eternally punished with the perpetual performance of useless tasks cf. Richardson 1985, 60. H 458 3. - Interpretation of image of person drawing water in leaky jar as 'labour in vain' cf. X. *Oec.* 7.40.

³⁶*Rags*: Prot. *Per.* 36. *Food*: D.L. 6.35, 61. *Oil*: Teles cited in Flacelière 1977, 29.

³⁷*Bed*: D.L. 6.23; cat. 220B. The *pithos* is normally depicted as still intact; there is only one depiction of Diogenes' home, the relief at the Villa Albani (Gouin 1996, 102 fig. 1) in which the *pithos* shows traces of repair.

as being a means to avoid those things considered dainties and to adapt to circumstances. From a more ideological point of view, the affiliation with all kinds of dirt can be linked to the ideal of disrepecting materiality. The Cynics surely held their way of life in high esteem, but at least some ordinary people seem to have taken exception to the dirty way of life. These people might not have hesitated to compare the Cynics with the paupers, criminals and disgusting (βδελύκτεροπος) monsters such as the Cyclops and Gorgon-like creatures.³⁸

The association of people with waste and rotten items as well as with dirt was a common method of expressing disapproval or of insulting people, in all periods under discussion and in various genres (epics, comedies, tragedies and forensic speeches). Overall, dirty waste seems to have been employed far less frequently to express disapproval than dirt. The most prominent example in which dirty waste was used to express low social esteem for an individual relates to Diogenes, at whom, it is said, small bones had been thrown (D.L. 6.46). An example in which an object was said to have been rotten despite its excellent physical condition was given by Aristophanes (*Ar. Thes.* 414-28, esp. 427), who stated that thieves called a security-system worm-eaten (θριπήδεστα σφραγίδια), when they realised that they could not crack it.

Various degrees of verbal abuse relating to dirt can be distinguished: associations of people with bad odours, dirty matters or filthy habits; accusations of living in a dirty environment or being unclean; insults of being dirty in the sense of having internalised dirt into their mental persona. By far the most common insults of the first category were scatophagous insults. In the *Knights*, kneading donkey-excrement for the stuffing of sausages and quenching one's thirst with dirty-water from the baths (κάκ τῶν βαλανείων πίεται τὸ λουτρῖον) were regarded by the Sausage-seller as being the adequate punishments for the chief demagogue (*Ar. Eq.* 1397-408). Scatophagous insults were hurled by Aristophanes (*Pax* 48, cf. Henderson 1975, 192 no. 414, 193 no. 417) at the tanner Kleon to whom he referred as someone who eats σπατίλη - a play on σπάτος, the hides and leather of Kleon's trade, and τιλάων, to excrete. The extent to which scatophagous references to excrement were meant to insult by referring to extremely low behaviour is shown in a statement by Phiddippides that not even Socrates, who was a frequent satirical target, would eat animal dung, filthy though he was (*Ar. Nu.* 1431-2). As Kleon played a relatively small part in comedies other than those of Aristophanes, it may be argued that

³⁸*Criminals*: *Ar. Ra.* 145-51. *Monsters*: *Ar. Pl.* 296-300 (Cyclops); *A. Eu.* 52-4 (Gorgon-like). Cf. Heath 1999, 35.

Aristophanes was expressing his own opinion rather than documenting a common view (Halliwell 1993, 332-3).

Other invectives characterised people - and in particular the tanner and leather-seller Kleon - as βορβοροτάραξις, churner of dirt, βορβορόπη, filth hole, and βορβοροκοίτης, (someone) lying in dirt (Ar *Eq* 309 Hippon. 135B; Batr. 230). Certain people were also referred to as a greedy beggar (μολοβρός) or addressed as filthy and disgusting shout-downer (ὦ μισρὲ καὶ βδελυρὲ καὶ κατακεκρᾶκτα; Hom. *Od.* 18.6; Ar. *Eq.* 303). Along similar lines went the frequently employed accusation of neglecting personal cleanliness, since this was used as a means to criticise, mock and marginalise people (e.g. Ar. *Av* 1282, 1554). Another way of associating people with dirt in order to express the low social esteem in which individuals or social groups were held is related to the verb προπηλακίζειν, to bespatter with mud (e.g. Ar. *Th.* 386). However, in contrast to the modern practice of throwing foul eggs and vegetables at politicians and bad orators, Aristophanes used it only in a metaphorical sense. The underlying idea in both cases is nevertheless the same; the people at which the dirty substances were targeted were considered to be no better than the dirt and waste hurled at them. A comparable set of characterisations of people was used in forensic speeches. Here, accused persons were called, for example, foul wretch (ὁ μισρὸς οὗτος), unclean of body μὴ καθαρεύοντα τῷ σώναρι) and an unclean scoundrel (ὁ ἀκάθαρτος οὗτος), to throw light on their socially unacceptable behaviour, habits and life style (Aesch. 1.54; 2.88; D. 19.199). Names deriving from κόπρος cannot be discussed in this context, as they did not belong to the large group of uncomplimentary nicknames, but were given at birth to children by their parents (Kajanto 1962, 50).

An even more powerful means of expressing feelings of disgust about a person was through phrases containing associations and comparisons not only with dirt and pollution, but with animals. Demosthenes (25.58), for instance, used the phrase μισρόν, μισρόν, (...) τὸ θηρίον καὶ ἄμεικτον, an unclean beast whose touch is pollution. An occasion when characterising a person as dirty appears to have been used both as an invective and as a means of distancing oneself from this person is documented in a story about the courtesan Gnaethenium. When a copper-smith boasted in public that Gnaethenium had granted him a special favour by 'riding the racehorse', a sexual technique she had refused to her permanent lover Andronikos, she was forced to explain this to Andronikos. She claimed that this technique was the only appropriate one, because she had had no desire to embrace the coppersmith's dirty body and had, therefore, contrived to touch only the part that was smallest in size and projected furthest away from him (Davidson 1998, 336 n. 21)

A person, who was said to be a hurler of ἀπειλὰς βορβοροθυμας, filthy-minded threats, was considered to be dirty (Ar. *Pax* 753, cf. Henderson 1975, 192 no. 414). Occasionally, a person was also said to be a container for dirt, when he was called σφυράδων πολλῶν ἀναμεστή (full of many shitballs), or to have become dirt, when he was called ἀποπάτημ' ἄλώπεκος (fox-shit), σφυράδων ἀποκνίσματα (little balls of sheep/goat dung), or μυόχοδος (mouse dung).³⁹

In order to express his low esteem for people and objects, Aristophanes in his writings used terms for bad odours, apart from those for waste and dirt.⁴⁰ The verb ὀσφαίνεσθαι, for example, corresponds with unpleasant smells. Such terms were used in regard to the tyranny of Hippias, the goddess of Wealth and the tragedies of Euripides to express criticism and antipathy (Ar. *Lys.* 619-23; *Pl.* 895-7; *Ra.* 893). The verb βδελύττεσθαι and the adjective βδελυρός were frequently employed by Aristophanes to characterise people, animals and things as disgusting, detestable and abominable.⁴¹ In German and French, βδελύττεσθαι may be best translated using phrases involving the sense of smell, namely 'jemanden nicht riechen können' and 'ne pas pouvoir sentir quelqu'un ou quelque chose'; however, to my knowledge, there does not exist a comparable English phrase. Aristophanes' (*Pax* 48, 753; *Eq.* 309) favourite target of insults, the tanner Kleon, at whom he hurled all kinds of dirty and humiliating insults, including scatophagy, hurler of filthy-minded threats, and churner of filth, was considered worthy of being called worse smell (than the others), βδελυρώτερος. A low opinion of the *choregoi* Melanthios and his brother was expressed by Aristophanes (*Pax* 811) by calling them τραγομάσχαλοι ἰχθυολύμμαι, fish-molestors with arm-pits smelling like a he-goat.

Contact or association with dirt did not always carry a negative connotation. However, the Selloi, the holy men of Zeus at Dodona, for instance, were obliged not to wash and oil their feet and to sleep on the bare ground.⁴² Although their dusty feet (ἀνιπτόποδες χαμαιεὔναι) defied the Homeric aristocratic ideal of the oiled feet resting on a footstool to avoid contact with the dirty ground of the *oikos*, they were not categorised as beggars or outcasts. This dirt was not dirty at all, but holy, as it made visible and symbolised a specific dedication to Zeus. Less religiously

³⁹Eup. *fr.* 284; Ar. *Pax* 790; Men. *Dyss.* 430. Cf. Henderson 1975, 193 no. 417.

⁴⁰This paragraph is based on Thiery 1993, 517- On odours in other societies to characterise the social world and to discriminate social groups cf. e.g. Seeger 1981, esp. 119-20; Detienne 1985, 93; Corbin 1996, 39-40, 142-50, 232.

⁴¹Βδελυρός: Ar. *Ach.* 288; *Pax* 182; *Ra.* 465, V. 914. Βδελυττεσθαι Ar. *Ach.* 1157; *Eq.* 252, *Lys.* 795; *Nu.* 906, 1133.

⁴²*Feet of Selloi*: Hom. *Il.* 16.233-5. Cf. Hes. *fr.* 5) (Merkelbach-West) cited in Laser 1983, S151-2 n. 393. *Aristocratic feet*: app. D ns. 12 17, 42. *Foot stool*: Hom. *Od.* 4 136; 10.363, 367; 17.409-10; 19.57. *Sleep*: S. *Tr.* 1166.

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connotated, but similarly positively valued were the style of life and the living conditions of the rural population by Aristophanes (*Nu.* 43-52, cf. app. D), which he sharply distinguished from life in the *polis* of Athens (Thiercy 1993).

HUMAN BODILY EMISSIONS AS 'MATTER OUT OF PLACE'

So far I have shown that marginal people were linked to dirt and waste with respect to their primary occupation involving contact with dirt and dirty waste, the negligence of their bodily cleanliness and their outer appearance, and the quality of their food and furniture. Here, I attempt to establish another link between low social status and dirt by drawing on Douglas' concept of dirt as 'matter out of place'.

It is well known that old age was not highly esteemed in ancient Greece (e.g. Hes. *Op.* 90-3; Ar. *Pl.* 265; Arist. *Rh.* 1360B). As long as the young, strong and beautiful body of a warrior was the ideal of Greek society, the physical decay of old people was considered pitiful, horrifying and sometimes even disgusting (e.g. Hes. *Op.* 111; Ar. *Pl.* 265-70). Old age was commonly associated with the loss of strength, all kinds of sufferings and death.⁴³ Whereas most ancient authors have used terms such as δειλόν, στυγερόν, λυγρόν γῆρας and νόσοι γῆρας rather unspecifically as *topoi*, Aristophanes specified the sufferings of old men as limp members, going all bent, toothlessness, wrinkles and lack of control over urination and excretion.⁴⁴ Incontinence was obviously a prominent characteristic of old men for Aristophanes, since he makes fun several times of old men defiling themselves.⁴⁵ This suggests that, at least in the classical period, the conceptualisation of old age as a negatively valued phase of life was marked by excrement and urine out of place - that is to say, dirt.

Lack of control over defecation resulting in self-defilement was also a distinguishing feature of characters in the comedies. Aristophanes makes fun of unmanly, anxious men who defile themselves in dangerous situations. That men dirtying themselves already played a role in archaic sub-culture can be deduced from the inscription Κό[πρ]ις on one of the archaic clay tablets (*pinakes*) found at the sanctuary of Poseidon at Penteskouphia.⁴⁶ In contrast to Aristophanes Herodotus (7.140.3) and Plato (*Phdr.* 254C) associated the uncontrolled discharge of sweat with

⁴³e.g. Hes. *Op.* 110-21; *Carm. Pop.* 17D; *Semon. fr.* 1.1-13; 29.5-12D; *Mimn.* 1D; 2.10-6D; 6D, *Pi. P.* 10.41; but also Arist. *Rh.* 1410B.

⁴⁴Hes. *Op.* 113; Hom. *Il.* 19.336; *Od.* 21.250; *Pi. P.* 10.41; Ar. *Ec.* 908; *Pl.* 265-70; *Th.* 63, 409-10; *V.* 1343.

⁴⁵Passages listed by Henderson 1975, 189 no. 400, 191 n. 408, 194 n. 420.

⁴⁶Furtwangler 1886, F 784; Pernice 1897, 34-5 with fig. 25 (new reading); Bechtel 1917, 480-2.611 (more general); Giuliani 198, 631 with n. 5.

fear and cowardice. This conceptual and associative link was less demeaning, it seems, and certainly not drastic enough for making fun of people on the stage.

There is a common agreement that craftsmen (τεχνίτες) were despised in most ancient Greek cities.⁴⁷ There is, however, a debate going on about when this marginalisation started and the reasons for which craftsmen had a demeaning status.⁴⁸ Maier (1986) analysed the relevant literary sources and concluded that the discrimination of craftsmen did not start before the end of the fifth century B.C. A thorough analysis of the sources made him conclude that the key to the liminal status of craftsmen was their primary occupation with manual toil, which either left them no time for political participation or was held to impede the development of their mind (cf. Eder 1992; Himmelmann 1994). Maier explained the discrimination in terms of a conservative-aristocratic reaction to the period of radical democracy, when the lower social strata of the *demos* took over the government. Philipp (1990) argued along the same lines as Maier, but put more emphasis on literary sources earlier than the fourth century B.C. She argued that there is little evidence to argue that craftsmen were despised in the Homeric epics and took the emergence of signatures and epigrams written by craftsmen praising themselves in the course of the sixth century B.C. as a sign of increasing self-confidence (Himmelmann 1979, 126). Herodotos' comments on craftsmen she played down as being merely Herodotos' personal opinion (Philipp 1990, 97). Attitudes towards craftsmen changed in the late fifth century, when they were referred to as a group characterised by βαναυσία, ἀνδραποδώδεις, and χειρωναξία (e.g. Himmelmann 1979, 128, 130-1).

Himmelmann (1994, 1996b) and Weiler (1997), by contrast, stated that physical work was already lowly regarded in the Homeric period. Himmelmann also concluded from his detailed study of representations of craftsmen on vases from the seventh to the middle of the fifth century B.C. that craftsmen were liminal members of the social community due to their menial occupation since the sub-geometric period, and certainly since the late archaic period (pl. 12). More specifically, he stated that the self-representations of craftsmen as people performing physically demanding and sudorific labour on votive offerings since the seventh century B.C. represent the ideals of a sub-culture.⁴⁹ This iconography of craftsmen was transferred, he argued, to

⁴⁷ *Tέχνη* denoting craftsmanship and *n* art: Himmelmann 1979, 138; Weiler 1997, 149 *D sdain*: Hdt. 2.166.2-167.2; Arist. *Pol.* 1278A.

⁴⁸ *Overviews*: e.g. Himmelmann 1979, esp 128-9; Weiler 1997; Giuliani 1998.

⁴⁹ Giuliani (1998, 631) criticised Himmelmann's interpretation of the self-representations of craftsmen on votive offerings, in particular the Penteskouphia *pinakes*, in terms of 'merciless realism' and proposed to re-interpret them as inversion of dominant values, that is depictions of physical and sexual strength. This new interpretation is not relevant for my argumentation, as both authors would agree that the self-depictions were expressions of a sub-culture, of which the

genre-scenes on luxury ceramics, from the middle of the sixth to the middle of the fifth century B.C., resulting in a change of meaning (Himmelman 1994; 1996b; Giuliani 1998, 632); it was seen by the aristocratic user as a depiction of people belonging to a sub-culture, totally different and inferior to the normative, aristocratic culture.

Giuliani criticised Himmelman's innovative study in two respects. He (1998, 631) argued convincingly that the Homeric epics are to be excluded from the list of evidence marginalising craftsmen, because it is unclear whether Hephaistos was predestined for his sudorific work (Hom. *Il.* 15.225; 18.370) or whether he was able to break his societal isolation by means of his skills as a craftsman.⁵⁰ Giuliani (1998, 631-3) also rejected Himmelman's interpretation of representations of craftsmen on luxury ceramic in general, and on the so-called bronze-foundry-workshop-vase (pl. 13) in particular, as images of social discrimination. For him, the visitors on this vase simply show an interest in the technical skill of craftsmen working with the new indirect casting technique. I agree with Himmelman that the depictions of the bronze-foundry-workshop are based on a set of oppositions between the workmen and the visitors. Whereas the former are portrayed naked, in action, using only the strigil as a tool and performing a diaphoretic work, the latter are dressed in expensive clothes, watching, using the strigil and running with sweat in the socially accepted context of the palaestra. I would go even further than Himmelman, to suggest that the work and status of the depicted workmen were also contrasted with that of the metal statue of the god or hero whose surface two *erganes* smoothen. The nakedness of heroes or gods has a meaning different to that of craftsmen, and whenever they are depicted in action and sweating, they perform socially accepted heroic toils.

Himmelman's approach is interesting for our understanding of the social mode of dirt for two reasons. First, he drew attention to processes of integration and marginalisation. His studies imply that these processes are a matter of perspective: craftsmen indicated that they regarded themselves as citizens by the fourth century B.C. by adopting the iconography of citizens, to the extent that representations of workmen were no longer distinguishable from those of citizens.⁵¹ The depictions of genre-scenes on luxury ceramic and the discriminatory statements in ancient literature show that they were not regarded as full members of the citizen-body. Second,

members were proud. In fact, Giuliani's new interpretation of the *Penteskouphia p nakes* seems to be more important for the question as to whether the cleansing of the Augian stables was celebrated as a physical exertion of Herakles or not (cf. app. E, s.v. settlements).

⁵⁰On physical ugliness as part and parcel of disgrace (αἰσχρός) cf. Lowry 1991; Cairns 1992.

⁵¹*Craftsmen as citizens*: Zanker 1995, 49-51; Giuliani 1998, 629. *Wish and social reality*: Pimpl 1997, 85.

Himmelmann interpreted the depictions of craftsmen as naked people in action as depictions of people performing sudorific work and running with sweat. Thus, he attributed significance to sweat in the stigmatisation of craftsmen and linked it to physical labour as the main discriminating factor of craftsmen. This point can be developed further, I think, with reference to Douglas' notion of dirt as matter out of place. More specifically, I think it forms a good basis for arguing that - at least at the iconographic level - craftsmen were socially stigmatised due to their (permanent) production of sweat outside of the socially accepted contexts of war and the palaestra - in other words, due to their dirty occupation.

To underpin the hypothesis that sweat and its discharge had a social significance, I shall add the results of a brief literary research on the terms 'sweat' and 'toil'. Though limited, it clearly shows that sweat used to be conceptually linked to toil and physical labour.⁵² It also supports a view that sweat and toil had a range of meanings and connotations. Sweat and labour mentioned in connection with war, sports and the gymnasium, dancing, hunting, heroic deeds, virtue and love had a positive connotation.⁵³ In addition, sweat produced for a short time and linked to self-control and knowledge seem to have been socially acceptable.⁵⁴ The sudorific tasks of rowers and any other permanent, compulsory physical labour, by contrast, were negatively connotated and were regarded the work of a wretch (ἐς κεφαλὴν σοί) ⁵⁵ That the right kind of physical exertion constituted social hierarchy was even held true by an advocate of the Athenian democracy. Herodotos stated that craftsmen were looked down upon, because they did not live in accordance with the aristocratic ideals of avoiding physical labour and indulging in exercises related to the art of war.⁵⁶ Most explicit about the social connotation of sweat is a fragment by Klearchos (FGRH, ap. Ath. 548B), in which the parvenu Anaxarchus would not eat bread which had come in contact with the sweat and the breath of the bread-maker, a measure which Corbin (1994) would explain in terms of an attempt of Anaxarchos to deny his previous life as a hard-working man.

⁵²e.g. Hom. *Il.* 10.572-5; 18.414-6; 21.560-1; 22.1; Ar. *Pl.* 510-26; X. *Oec.* 2.1.3.

⁵³*Battlefield and physical exercise for war*: e.g. Hom. *Il.* 2.388, 390; 11.598; 13.705-17.745; Ar. *Ach.* 694-7; X. *Cyr.* 2.1.29; 2.2.30, 4.6; 8.1.38. *Athletic competitions/sports/gymnasium*: P. *N.* 7.72; Pl. *Phaedr.* 239C; *Symp.* 3-5; X. *Eq. Mag.* 8.6, *Symp.* 2.4. *Dancing*: X. *Smp.* 2.17. *Hunting*: X. *Mem.* 2.1.18. *Heroic deeds*: Hdt. 3.125.4. *Virtue*: Pl. *Rep.* 364D; X. *Mem.* 2.1.2, *Symp.* 2.3-5. *Love*: Pl. *Phaedr.* 251A.

⁵⁴*Temporarily secreted*: Arist. *Rh.* 1370D. *Self-control/knowledge*: X. *Mem.* 1.4.13-2.1.1.

⁵⁵*Rowers*: X. *Oec.* 2.1.3. *Permanent and compulsory work*: X. *Oec.* 2.1.3. *Wretch*: Ar. *Pl.* 526.

⁵⁶Hdt. 2.167 (ὁρῶν (...) τοὺς δὲ ἀπαλλαγμένους τῶν χειρωναξίεων γενναίους νομίζοντας εἶναι, καὶ μάλιστα τοὺς ἐς τὸν πόλεμον ἀνειμένους. μεμαθήκασιν δ' ὧν τοῦτο πάντες οἱ Ἕλληνες καὶ μάλιστα Λακεδαιμόνιοι, ἥκιστα δὲ Κορίνθιοι ὄνονται τοὺς χειροτέχνας)

Summing up, based on Himmelmann's emphasis on the physically demanding, sudorific work of craftsmen and Douglas' notion of dirt as 'matter out of place', I argued that craftsmen were marginalised from the late archaic period, because their secretion of sweat and performance of toil was linked to ποίησις and workshops, not to ἄθλος, battlefields and sports. The dirtiness of physical work was seen as just one factor contributing to the low esteem of craftsmen. Other factors included the permanence of the occupation, which would leave no time for political engagements and leisure, as stressed by Aristoteles, Plato and Xenophon (e.g. Flacelière 1977, 79; Eder 1992, esp. 25; Stein-Hölkeskamp 1992, 41; cf. Veblen 1989, 19-21), and the fact that it was wage-labour (Ste Croix 1983, 181-2).

APPENDIX C. CLEAN(S)ING SUBSTANCES

This appendix briefly discusses substances (καθαρήρια, καθαρτικὰ φάρμακα) used for cleansing and purification in ancient Greece. Owing to my focus on substances, I neglect cleansing media such as scapegoats, music (Thales), intellectual exercise/mental catharsis (Pythagoras), and ecstatic rituals (priests of Dionysos).¹ The purpose of this overview of cleaning and purificatory materials serves four purposes. First, it aims to explore changes across time, in the use of cleaning agents. The results of this analysis shall be used in the discussion of personal cleanliness within the Eliasian framework of transformation/civilising processes (II.4.1) and compared to those of appendix D. Second, the discussion of the use of perfumes for beautification and deodorisation will shed light on changing sensitivities of bodily odours. As with the former point, statements on the increase or decrease in the tolerance of (bad) bodily odours may contribute to the discussion on changes in the personality structure, including the increase/decrease of self-restraint (II.4.1). Third, the subsection on the different kinds of cleaning substances dissolved in water will enable me to critically discuss Crouch's hypothetical list of possible recycling methods of water deriving from cleaning routines. Finally, this appendix aims at establishing oil as a cleansing agent.

WATER

Water was the most widely employed means of eliminating dirt in ancient Greece.² That water could wash away not only physical dirt, but also immaterial dirt was a widely accepted idea in classical Greece: Aristophanes (V. 118) stated that the mentally disturbed were cleansed with water to cure them, and Sophocles' description of the cleansing scene of *Ajax* (5, 66) implied that he hoped to wash away his madness. Water was used for purposes as different as cleaning and purification, and for occasions as different as medical treatments, marriage, death and sacrifices (cf. Ginouvès *et al* 1994a). In principle, a particular type of water (e.g. salt water and drinking water, water from springs, wells, cisterns, rivers) could be used for all kinds of clean(s)ing practices. Thus, water from springs was used, after the fifth century BC, both for daily washing routines and for purificatory rites, and cult-statues were washed in rivers and the sea.³ The classification of lustral water as pure (καθαρόν;

¹*Scapegoat*: e.g. Blech 1982, 370-1; Bremmer 1983; Parker 1996, 24-6, 226, 258-60; Burkert 1998, 51-3. *Music therapy and ecstatic rituals*: Parker 1996, 212, 297-8. *Pythagorean mental catharsis*: Parker 1996, 298 with n. 86.

²Burkert 1977, 130; Parker 1996, 226 with n. 104.

³*Water from sources considered as harmful before the fifth century BC*: Weber 1996, 118, but pl 3.2 *Cult-statues*: Ginouvès 1962, 283-98; Kahil 1994. Kahil (1994, esp. 222) stated that the

ἀθόλωτον) and sacred (ἄκῆρατον, ἄγνόν), from the Homeric to the classical period, was not restricted to certain kinds of water, but rather to water used in cathartic rites.⁴ However, it needs to be stressed that salt water (ὔδωρ πλατυ, θάλασσά) or mixtures of different kinds of water appear to have been considered particularly suitable for purifications.⁵

Cleanliness may be achieved solely by the use of cold and hot water. Its dissolving factor was improved by mechanical movements. The use of a sponge for cleaning bodies and surfaces of furniture is documented as early as the Homeric period (e.g. Hom. *Il.* 18.414). Similarly, a crucial element in the cleaning of clothes seem to have been their stamping (Hom. *Od.* 6.124).

CLEANING AGENTS, DISSOLVED IN WATER

The cleaning power of water could also be increased by adding biological or chemical substances. It is commonly held that soap, the most widely applied modern cleansing agent, was not yet known to the Greeks.⁶ More precisely, it is either generally assumed that the Greeks did not know the substance called *sapo* or that they had not conceived of it as a cleaning agent. The first assumption is based on Plinius' (*N.H.* 25.3.191) notion that the Gauls invented *sapo*. The second assumption is based on literary sources which do not document the usage of *sapo* as a cleaning substance either for the body or clothes before the second century A.D. (Galen. 12 170-80). Before that date, Gauls and Romans had conceived of *sapo* as a medicine and a hair dye (Gross 1975, 1545).

Blümner (1875, 162) pointed out that *sapo* is but *one* kind of soap and that lye may be regarded as another type of soap. In contrast to *sapo*, lye is processed by

cult-statues of Aphrodite, Hera, and Demeter were washed in rivers, whereas the statues of Artemis and Athena were washed in the sea, and explained the bath in the river, of Hera and Demeter, as practices aiming at renewing their virginity and the sea-bath of Aphrodite as a pre-nuptial bath signifying fertility. The bathing of cult-statues of Artemis and Athena, she explained as renewal rites of their youth (*nouvelle jeunesse*) and concluded that they had been part of agricultural rites. Interesting as Kahil's interpretation is, I wonder whether the bathing of the cult-statues of Artemis and Athena did not draw on the symbolism of sea-water as infertile water. If so, baths in the river would have been preserved for gods and goddesses taking a particular interest in producing offspring

⁴Καθαρόν: e.g. Xenoph. *fr.* B1.8 (Diels-Kranz). Ἀθόλωτον: e.g. Hes. *Op.* 594. Ἀκῆρατον: e.g. Hom. *Il.* 24.303. Ἄγνόν: e.g. Semon. *fr.* 577 (Page); Pi. *I.* 6, 74; S. *Ant.* 1201 (λουτρόν). *Purity of water as a subjective category in the Homeric epics and early archaic poetry*: Arnould 1994. *Purity as a contextual category*: Parker 1996, 226 with ns. 105-6, add Pl. *Ti.* 22D.

⁵*Salt water and purification rites*: Eitrem 1915, 323-34; Jameson *et al* 1993, 33, 42, 45; Parker 1996, 226-7 (with references; add *lex sacra* from Selinous B.11 (Jameson *et al* 1993, 45), where salt or salt water was prescribed to mark the boundary between the person sacrificing and the altar). *Mixture of different spring*: Parker 1996, 226 with n. 17.

⁶e.g. Flacelière 1977, 206; Weber 1996

bringing to the boil potassium and soda with water instead of fat (Neuburger 1919, 119). The usage of lye (κονία, ρύμμα and λίτρον or νίτρον) as a cleansing substance is attested for, among other cultures, Greece.⁷ Besides *sapo* and lye, a soap-like substance is set free by a plant called στρουθίον (cf. Pekridou-Gorecki 1989, 52). Dioskurides recommends its use for washing clothes as early as the second half of the first century A.D., but it might have been used as a cleaning substance long before the first literary quotation. Consequently, it is correct to state that ancient Greeks did not use *sapo* as a cleansing agent, but it is not correct to state that they did not use soap.

It is not clear when soap-like substances were first added to the washing water in ancient Greece. It is possible that they were already used in Homeric society. This must remain a speculation, as it is impossible to prove that the extensive use of oil among the Homeric aristocracy was linked to curing skin irritations, a common side-effect of lye. In addition, terms like κονία, ρύμμα and λίτρον/νίτρον occur in pre-classical texts, but in contrast to classical texts they cannot be linked unequivocally with lye/soap. Κονία, for instance, occurred already in the Homeric epics, but it did not denote pearl-ash, lye or soap-powder, as in the Aristophanean comedies, but rather dust or ashes. Its association with dust was also known in the classical period, in particular in tragedies.⁸ A similar range of meaning - dirt and substance eliminating dirt - was typical for the term ρύμμα: it was used for anything bringing about cleanliness by comedians and philosophers, while it denoted sediment and dirt remaining from washing by Galen.⁹

There are two kinds of lyes which served as bathing substances in other cultures, namely potassium and soda (Neuburger 1919, 118). Potassium, potassium carbonate (K_2CO_3), may be either a mineral substance (nitre) or a vegetable substance consisting of ashes of plants containing potash (borite).¹⁰ Sodium, sodium carbonate (Na_2CO_3), is a mineral substance which occurs naturally in salt lakes. Classical Greeks seem to have used lye based on potassium and sodium, since κονία used to be associated with ash and nitro with sodium.¹¹ Most specific about the ingredients of cheap cleaning substances used in public baths was Aristophanes (*Ra.* 709-13). He stated that

⁷*K nia*: Ar. *Ach.* 18, *Ra.* 711; *Lys.* 470; Plat. *Rep.* 4.430B; Thphr. *HP* 4.10.4; Arist. *Met.* 2.3. Cf. Ginouvès 1962, 142 ns. 6, 8; Flacelière 1977, 206. *Rhumma*: e.g. Ar. *Lys.* 377; Pl. *Rep.* 429E-F. Cf. Blumner 1875, 162 n. 3; Ginouvès 1962, 143 n. 1. *Litr n*: e.g. Pl. *Tim.* 60D; Her 2, 86, 87. Cf. Blumner 1875, 162 n. 4; Ginouvès 1962, 141 ns. 7, 11. *Egypt and Sumer*: Weber 1996, 161.

⁸LSJ s.v. κονία.

⁹LSJ s.v. ρύμμα

¹⁰It is not true (Bodner 1985, 106) that borite can be processed from a certain range of oriental woods only, cf. Neuburger 1919, 119.

¹¹Ar. *Ra.* 709-11 implies, however, that κονία was based on soda.

Kleigenes, the most-wicked bathman of all, used inferior cleaning substances such as Κιμωλία γῆ (earth from the island Kimolos, containing soda) and 'κυκησιτέφρου ψευδολίτρου κονίας' (lye consisting of ash and pseudo-soda).¹²

Besides potash and soda, there are less aggressive cleaning substances such as ash and bran (Neuburger 1919, 118). Which of these substances was added to the laundry on the early-classical vase-painting by the Pan-painter is difficult to say (p. 395 fig. 10). More important is perhaps the fact that water was not considered sufficient for cleansing and whitening dirty clothes.

SALT

Besides salt water, salt (ἡάλα) had cathartic functions.¹³

OIL

Most modern authors conceive of oil only as a product for skin care (e.g. Paszthory 1992, 43). Exceptions are the statements by Flacelière (1977, 206) and Weber (1996, 161) emphasising its function as a cleansing agent in the context of the palaestra. I think this interpretation can be justified with reference to archaic and classical vase-paintings depicting *aryballoi* or *alabastra*, which contained either pure or perfumed olive oil, together with strigils and sponges as the standard cleaning kit of athletes (e.g. pls. 14.3-6).¹⁴ The arguments of Flacelière and Weber that oil together with sand may be called a cleansing agent because it simplified the removal of sweat strike me as being odd, since sand - and most likely also oil - was not applied to the body with the intention of cleaning it. In fact, sand from the arena may not be called a cleansing agent in the strict sense at all, as it was - together with sweat - the focus of cleansing activities of sportsmen. Oil was also a means of cleansing and beautification in the female realm, because *aryballoi* and *alabastra* were part of the κομιδή-equipment of female bathers (pls. 16.2, 6). Judging from the amount of *aryballoi* and *alabastra* found and the quality of their decoration around 500 B.C., it may be concluded that oil was a widely used cleaning/beautifying agent by the end of the archaic period (Maaß 1996, 141). As a shining body was already part of κομιδή (body care/cleanliness) in Homeric society, oil was already used both as a cosmetic and a cleaning product in the Homeric society.¹⁵

¹²Consistency of the earth from Cimolus: Flacelière 1977, 206.

¹³Eitrem 1915, 323-34, add *lex sacra* from Selinous B.11 (Jameson *et al* 1993, 45), in which salt or salt water was prescribed to mark the boundary between the person sacrificing and the altar.

¹⁴Content of *aryballoi*: Shanks 1999, 172-3.

¹⁵Homeric κομιδή: app. D, s.v. Homeric period. *Contra*: Paszthory 1992, 43; Weber 1996, 159-

This double aspect of oil may also have played a role when it was applied to hair. The beautifying and eroticising aspects of oil are well documented in literary sources.¹⁶ It is also attested that lice bothered most of the Greek population, particularly women (contra Kraus & Ihm 1996, 318). This is either explained in terms of the length of the hair or the moistness of women.¹⁷ Since oil prevents the penetration of oxygen and, thus, suffocates the lice, it is possible that ancient Greeks greased their hair with the intention of fighting this infestation.¹⁸ If oil was indeed applied to the hair to reduce the amount of lice, it was used as a cleaning substance for the hair. Greasing hair would have been, then, a more time-and-labour-efficient way of fighting lice than removing them one by one by hand.¹⁹

'PERFUMES'

Before the invention of distillation in the second century B.C., perfume consisted of oil, animal fat or butter mixed with fragrant plant essences.²⁰ In the Homeric period, the most common special scent was θυώδης, enriched with thyon-wood (θύον).²¹ Odoriferous oils or ointments were called μύρον or χρίσμα (Czygan 1987, 1189, 1192). Good and pleasant odours (εὐωδία), were already appreciated by Mycenaean people (Shelmerdine 1985; Bunimovitz 1987). In the course of time, perfume seems to have been used by more and more people: in the Homeric period, perfumes were mostly employed by gods and only rarely by aristocrats.²² Since the archaic period, their extensive use by men and women is documented and, by the classical period, people of all social strata applied perfumes to their bodies, albeit in different quantities and qualities.²³ A necessary prerequisite of this perfume boom

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¹⁶e.g. Hom. *Il.* 19.126; Xenoph. *fr.* 3 (Edmonds; ap. Ath. 526A B); Ar. *Eq.* 580 (scented hair); D.L. 6.66.

¹⁷*Long hair*: Hdt. 4.168.1. Women: pl. 16.5

¹⁸*Suffocation*: Dayagi-Mendel 1989, 78.

¹⁹Herodot (4.168.1) did not express astonishment or bewilderment when he stated that the women of Adymachides removed lice by hand.

²⁰*Distillation*: Czygan 1987, 1192. *Greek ointments, their ingredients and their origin*. Paszthory 1992, 43, 48, 64 n. 166.

²¹The odour of the thyon-wood was linked to the wooden interior of houses of the elite (Hom. *Od.* 4.121, cf. Hom. *Il.* 24.192 (cedar) and clothes θυώδεα εἴματα; Hom. *Od.* 5.264, 21.51-2), which were probably stored in chests made of thyon-wood or rooms built with thyon-wood (Hom. *Il.* 6.288, *Od.* 15.99). Cf. Stengel 1972, 10, Laser 1983, S6 n. 6.

²²Ambrosial oil enriched with thyon-wood (τεθρωμένον ἔλαιον) was only mentioned once in connection with the divine sphere (Hom. *Il.* 14.172), but from Hom. *Od.* 4.441-6 it becomes evident that ambrosia, which was only available for gods (Hom. *Il.* 14.170-2; *Od.* 18.192-4, *h.Cer.* 275-80 (h. 1), 237 (h. 2); *h.Ven.* 61-3), was a perfume. Oil and ointment ελαιον, αλοιφή, ἀλειφαρ applied to the bodies of the elite was referred to as εὐώδες ελαιον (Hom. *Od.* 2.339). If the choice of vocabulary is meaningful, the olive oil used by humans just described the natural fragrance of olive oil. Cf. Laser 1983, S163.

²³*Homer c.*: n. 24; Laser 1983, S6 n. 6. *Men*: e.g. Alc. 50.1; Anac. *fr.* 363; Ar. *Nu.* 1107-9; *Pax* 862; *Eq.* 1374; *Lys.* 938; *Antiph. fr.* 188 (Kassel & Austin); X. *Smp.* 2.4 Mem. 2.1.24; not tolerated in X. *Smp.* 2.3. *All social strata*: e.g. Ar. *Pl.* 810-1; *Ec.* 744, 1.17-9; *Eq.* 1374; X.

was the availability of odoriferous oils or ointments, which rapidly increased with the orientalisising phase, due to new trading and exchange policies.²⁴ Good and pleasant odours were applied for many purposes, including beautification, 'erotisation' and concealing most unpleasant odours (ὀλότης ὀδμή), including those emitted by the body.²⁵ Thus, perfumes were employed both as a cosmetic utensil and a deodorant, which is linked in our modern understanding to bodily hygiene.²⁶ Pleasant odours were also used for many significant occasions of life, including funerals, weddings, symposia, feasts such as the *Adonia* and sacrifices and cults.²⁷

It is reasonable to argue that there was no increase in the sensitivity towards unpleasant odours, from the Homeric to the classical period. In contrast to the Aristophanean comedies, the Homeric epics do not put emphasis on unpleasant smells, but rather on pleasant odours of things, locations and people.²⁸ Thus, there is no reference to stinking people in the Homeric epics, but only to the sweet breath of a person, the seductive odours of female hair, a fragrant bosom, and sweet-smelling robes.²⁹ That this does not mean that Homeric people were intolerant towards vile odours becomes evident in the passage in which Eidothea supplied the comrades of Odysseus with perfumed ointment to conceal the intolerable odours of newly flayed seals (Hom. *Od.* 4.411-6). It can, therefore be concluded that the classification of the

Smp. 2.4; *Hyp. Ath.* 3.19; perhaps also *Cratin. fr.* 21 (Kock) *Quantity*: e.g. *Ath.* 544E, 553A. *Quality*: e.g. *Poseid. fr.* 258 (FGrH; ap. *Ath.* 527E; *Ar. Pl.* 616; *Plu. Per.* 1.4-2.1; *Ath.* 545F; 553A-E. Cf. Fehr 1979, 14, 91 n. 77.

²⁴At high premium in Homeric period: Laser 1983, S163-4. *Increase in use/trade*: Fehr 1979, 91 n. 77.

²⁵*Beautification*: e.g. *Hom. h.Cer.* 275-80 (h. 1); *Ar. Ach.* 1092; *Lys.* 397-9, 938-43; *Nu.* 51; *Ecc.* 524-6; *Pl.* 1020. *'Erotisation'*: *Ar. Ach.* 1092. *De odorant*: *Hom. Od.* 4.406, 441-6.

²⁶*Cosmetic utensil only*: e.g. Cozygan 1987, 1189 Paszthory 1992.

²⁷*Funerals/dead*: *Kleidemos fr.* 23 (ap. *Ath.* 410A). *Weddings*: e.g. *Ar. Nu.* 49-51; *Pl.* 525; *X. Smp.* 2.3. *Symposia*: e.g. *Ar. Ach.* 1085-95; *Xen. ph. fr.* 1.3 (West); *X. Smp.* 2.3; *Ath.* 542C-D; 547F. *Adonia*: e.g. *Ar. Lys.* 398. *Sacrifices*: Thiercy 1993, 523-45 (with references). *Cult*: e.g. Jameson *et al* 1993, 15-6; Scullion 1998, 117. Cf. the Hellenistic perfume altar near the Temple of Isis at Delos (Rossiter 1981, 619).

²⁸*Homeric Age*: e.g. *Hom. Il.* 1.66 (sacrifice); 3.382 (chamber); 4.49 (sacrifice), 7.315-6 (sacrifice); 8.48 (altar), 549-50 (sacrifice); 9.499 (sacrifice); 23.148 (altar), 170 (offerings for cremation); 24.69 (sacrifice), 192 (cedar wood); *Od.* 2.339 (olive oil); 4.121 (chamber), 441-6 (skins of newly flayed seals); 5.59-61 (cedar, citron-wood), 64 (cypress), 8.363 (altar); 9.210-1 (wine); 10.9 (feasting); 12.369 (feasting); 17.270 (feasting); 24.67-8 (offerings for cremation), 73 (perfumed(?) ointments for bones of Achilles); *h.Cer.*, 13-4 (h. 2; flowers) 97 (h. 2; Eleusis), 244 (h. 2; chamber), 288 (h. 2; chamber), 318 (h. 2; Eleusis), 331 (h. 2; Olympos), 355-6 (h. 2; temple), 385 (h. 2; temple), 401-2 (h. 2; flowers); *h.Ap.* 87 (h. 3; altar); *h.Merc.* 65 (h. 4; chamber), 131 (h. 4; sacrifice), 325 (h. 4; Olympos); *Hom. h.Ven.* 58 (h. 5; temple), 59 (h. 5; altar), 66 (h. 5; Cyprus); *h.Bacch.* 35-6 (h. 7; wine), 6 (h. 26; cave); *h.Pan.* 25.6 (flowers) *Odours in early p.etry*: Lilja 1972. *Odours in the Aristophanean comedies*: Thiercy 1993.

²⁹*Sweet breath*: *Hom. h.Cer.* 238 (h. 2). *Hair*: e.g. *Hom. Il.* 14.172; *Ar. Ec.* 524. *Robes/body*: *Hom. Il.* 3.385; 18.25; 21.507; *h.Cer.* 277-8 (h. 2, *Hom. h.Merc.* 231 (h. 4), 237 (h. 4)). *Bosom*: *Hom. Il.* 6.483; *h.Cer.* 231 (h. 2). *Reference to stinking people in the classical period*: *Ar. Ec.* 1098; *Pax* 168-71; 814. There is also a reference to the sour smell of women after having participated in the Thesmophoria which may be interpreted with Detienne (1985) in terms of bodily smell caused by negligence of personal cleanliness

world in good and bad on the basis of pleasant and unpleasant smells was not a new feature of classical Greece, but a constant of historic Greece, which goes back to the Homeric Age.³⁰

BLOOD

The shedding of blood as a cathartic ritual was not practised in ancient Greece before the orientalising period (Stengel 1972, 18-9; Parker 1996, 18-31). In the course of the 'orientalising revolution' pig's blood became a commonly acknowledged cleansing agent (Parker 1996, 27). Pig's blood purified sanctuaries, the meeting places of the council and the assembly, armies and mythical individuals.³¹ It was probably also pig's blood which the Kyrene kathartic law recommended to a man who sought catharsis from tithē.³² In the opinion of Empedokles, the blood of any sacred animal shed over an altar had the power to cleanse it (app. E, s.v. sanctuary). In analogy to Empedokles' view, the shedding of the pure blood of the virgins Iphigenia, Polyxena, Macaria, and the daughters of Erechtheus, in the context of a heroic or mythical sacrifice, may also be conceptualised as a kathartic rite.³³ In contrast to the covering of altars with blood from sacrificial animals, the blood from human sacrificial victims was not smeared over the altar in public - it was performed only in the imagination of individuals (Loroux 1987).

FIRE AND SULPHUR

Fire had many meanings and one of them was its understanding as a source of purity.³⁴ Herakles, for instance, purified himself with fire at the altar (E. *Herakl.* 1145). Torches were an indispensable part of many ceremonies and, swung vigorously, they could purify a room or a man (Parker 1996, 227). Sharp smelling substances could be added to the fire when purification was needed (Hom. *Od.* 22.480). The cathartic power of fire may also have played a role in the process of making pure the dead (ἀγνίζειν).³⁵

³⁰*Classical Greece*: Flacelière 1977, 38; Kollesch & Nickel 1989, 43 (Hippocratic medicine); Thiery 1993, esp. 517-520 (Ariophanes). *Odour as a classificatory system*: Detienne 1985.

³¹*Literary evidence*: Parker 1996 21. *Fourth century vase-paintings*: Straten 1995, 4

³²Cathartic Law of Cyrene line 33 (Parker 1996, 339).

³³*Purity of blood rather than purity of virgin*: E. *Hec.* 537 (ἀκραίφνες αἶμα); IA 1574 (ἄχραντον αἶμα), but Paus. 4.9.4 (calling the virgin daughter of Aristodamus ready for sacrifice (ἄχραντη)). Cf. Loroux 1987, 77 n. 7. *Killing as a sacrificial act* (σφαζειν and θύειν): Loroux 1987, 13-7, 32, 43-4, but A. IA 512, 939, 1317-8 (calling the killing of Iphigenia murder (φόνος) or murdering (φονεύειν), cf. Loroux 1987, 32, 77 n. 2.

³⁴Morris 1995, 55-61; 1996, 20 with n. 23.

³⁵*Contra*: Parker 1996, 329 n. 12, who noted that it is more plausible to translate ἀγνίζειν with consecrating (by destruction).

PUMICE, DIRT, AND PLANTS

Historical Greeks may have used pumice (κίσσηρις) and sand as a cleaning agent.³⁶ Cleanliness and purification was also achieved by contact with dirty substances such as dung, dirt from the streets or dirty rags (Davidson 1997, 289). This cleansing method seems to have primarily been applied by people who sought purification and absolution by humiliating themselves with a piece of dirt. Among plants, serpolet and laurel were held to have inherent cleansing powers.³⁷ As laurel was dear to Apollo it was often used in purificatory rites carried out by Apollo or by one of his priests. In Miletos, for example, people who suffered from a sickness sent by Apollo were cured from it by being beaten with laurel by a priest of Apollo (cf. Blech 1982, 233 n. 105). Thus, laurel was another cleaning substance which served 'to clean the body' and 'to honour the gods'. The only group of people who insisted on not confusing these two realms were the Pythagoreans (cited in Parker 1996, 295 n. 70).

CONCLUSIONS

Materials and substances which served as cleansing agents in ancient Greece included different kinds of water, lye, στρουθίον, pumice, laurel, oil, 'perfumes', blood from pigs and sacrificial victims. These substances were either used individually or in combination such as water with laurel or soap. Nearly all of these cleaning substances used to be employed for ordinary and ritual cleaning practices, although salt water, mixtures of different kinds of water, and blood appear to have been considered particularly suitable for purification. The cleaning quality was not inherent in substances, but obtained from the context in which they were used. Purificatory agents were by definition clean and pure. Thus, sweet and salt water alike would have been regarded pure (καθαρόν; ἀθόλωτον) and sacred (ἄκήρατον, ἄγνόν), if either of them was employed in the sacred realm. Exceptions to this rule seem to have been restricted to certain social groups, including the Pythagoreans, who strictly distinguished between cleaning and purifying substances.

As far as the Eliasian model is concerned, it is difficult to pin down changes in the use of cleaning substances and, thus, changes in the perception of dirt. This is primarily due to the fact that it is not clear whether different forms of soap were already known in the Homeric period and whether the small vessels held by women in bathing scenes on archaic vessels contained cleaning substances (pl. 16 1). Thus, the possibility cannot be excluded that there was a shift in the way in which dirt was dissolved, namely from washing it away just with water and a sponge in the Homeric

³⁶*Pumice*: Neuburger 1919, 118; Laser 1983, S162 n. 426. *Sand*: Neuburger 1919, 118.

³⁷*Serpolet*: Ar. Pax 168-70 *Laurel*: Blech 1982, 231-67.

period, to fighting it with soap and water in the classical period. On firmer ground stands the statement that there was no refinement in the intolerance of bad (bodily) odours, as people in the Homeric period seem to have been equally sensitive to vile smells as people in classical Greece.

APPENDIX D. HISTORY AND SOCIOLOGY OF PERSONAL CLEANLINESS

Different aspects of cleanliness have been discussed in various archaeological, philological and historical studies. Dayagi-Mendels (1989) and Paszthory (1992), for instance, published studies on the use of perfumes and cosmetics in the ancient world. Changing conceptualisations and understandings of cleanliness and dirt have been the subjects of philological studies (e.g. Neumann 1992; Parker 1996). Other authors reconstructed Greek bathing culture either from the Homeric tradition to the Roman occupation or focused only on the Homeric epics.¹ Ginouvès' (1962) basic book on *Balaneutikè*, for example, discussed various social contexts and occasions for which cleansing practices were required in the ancient Greek world, and changes over time in cleaning practices. He occasionally linked his results to broader societal and political configurations, namely the processes of urbanisation and democratisation, but his results are not discussed within an explanatory social and political framework. More socially informed are the studies on Homeric cleanliness by Laser (1983) and Wöhrle (1996), but they are restricted to the Homeric period and do not encompass comparative references to later periods. Similarly, the recent publications of Hawley (1998) and Shanks (1992a; b; 1999) address the issues of the meaning and symbolism of cleanliness only within a very restricted time-span. Hawley's article on beauty and external appearance in classical tragedies illuminates primarily the symbolism and manipulation of cleanliness of the female sex in two tragedies by Euripides. Shanks' various contributions to the interpretation of art in the context of the emergence of the city-state were based on one material culture category, the Corinthian *aryballoi*. Lewandowski's (1960) revised version of Licht's discussion of cleaning practices as a part of his study on changing customs and standards of morals in the ancient Greek world provided the ideal setting for a discussion of cleanliness within the parameters of time and social power. However, the actual discussion of the literary and archaeological evidence was too superficial and eclectic to highlight changing patterns of cleanliness and purity. This can be partly explained by the lack of a synthesizing study on cleanliness, and partly by the lack of interest in social theory of classical archaeologists, philologists and ancient historians.

As a result, a history and sociology of personal cleanliness taking into account wider political, societal and symbolic implications remains to be written for ancient Greece. There are two French historic studies on cleanliness adopting an interdisciplinary perspective and drawing on sociologically informed historic analysis that may serve as examples for a Greek study, namely that of Vigarello (1988) and

¹*Subsequent periods:* e.g. Ginouvès 1962; Flacelière 1977; Yegul 1992; Hoffmann 1996; Weber 1996. *Homeric period:* e.g. Laser 1983; Wöhrle 1996.

Corbin (1994). Vigarello understood and interpreted changing concepts and attitudes towards cleanliness in France, from the Middle Ages to modern times within the framework of Elias (cf. I.2.1). Corbin discussed good and bad odours and cleanliness with respect to the social imagination in France. He took particular interest in discussing odours and cleanliness as one of the Foucaultian disciplines of social control (cf. I.2.1).

This history and sociology of personal cleanliness will explore practices of personal cleanliness within the Eliasian framework of the 'civilising process'. Thus, personal cleanliness shall be analysed with reference to (1) the occasion and context when they occur or are required, (2) the localisation in which they are socially and culturally accepted, (3) cleansing methods and agents, and (4) the purposes they are meant to serve. The first point aims to examine when cleaning mechanisms are required. In everyday life, the frequency of cleaning processes may be a matter of the sharpness of perception of bodily sensations, or it may be linked to important social and cultural events, like sacrifice or rites of passages, including marriage and death. Furthermore, cleaning processes may become necessary, because different contexts require different standards of cleanliness (cf. app. E; II.4.2). In terms of the place, it is necessary to explore whether practices of cleanliness are part of the intimate realm, such as a separate room within the *oikos*, or rather the public realm, such as baths and in how far this is dependent on gender, social status or progressive pressure of civilisation. Moreover, cleaning processes are to be examined in terms of cleaning methods and cleaning substance, including putting on white or freshly washed clothes, the usage of perfumes, steam, water, or cleaning substances or a combination of these elements. As the changing use of cleansing agents has already been analysed in appendix C, I will restrict myself in this appendix to the exploration of changing cleansing methods. Cleaning activities also have to be studied with respect to the body parts they include, for instance, only visible parts of the body and visible clothes or the entire body. Lastly, practices of cleanliness will be discussed with respect to the purposes they are meant to fulfil and their social meaning, since cleanliness may be a matter of appearance, smell or absence of germs. If the socio-political development of historic Greece indeed follows a civilising process in the Eliasian meaning of the word, as supposed under I.2.1, the following changes can be expected: a greater refinement in cleansing methods, including the use of special cleansing agents; an increase in the frequency of cleansing routines; a shift in the location, from the public to the private.²

²*Process of privatisation*: cf. III.3.4.

HOMERIC PERIOD

The Homeric epics seem to have been written at different times. I will discuss the *Iliad*, the *Odyssey* and the hymns separately with a view to finding out as to whether there was a change in the perception of cleanliness and the social setting of cleansing.³

There is no Greek term for body-care or personal cleanliness in the *Iliad*. Despite the conceptual absence of body-care, the *Iliad* contains a variety of cleaning scenes. The cleansing agents and methods applied depended upon the kind of substance that had to be cleaned away, and the circumstances. Aias, for example, just spat out the dirt (ὄνθος), onto which he had slipped and which filled his mouth and nose (Hom. *Il.* 23.774-7, 781). Similarly minimalistic were the cleansing efforts made by Odysseus and Aias after the wrestling contest on the funeral games for Patroklos; both wiped off the dust from their naked body parts (ἀπομορξάμενοι κονίην) and, then, put on their *chitones* (Hom. *Il.* 23.739). Sweat could be removed from the face, hands, neck and breast by means of a sponge (σπόγγω ἀπομόργνυναι) or just by resting and allowing the sun to dry the skin (ἀποψύχεσθαι).⁴ Alternatively, sweat could be washed away with water (ἰδρῶ ἀποψυχθεῖς/ ἀπενίζεσθαι) either in the sea, as done by Diomedes and Odysseus, or in the river, as taken into account by Agenor.⁵ Cleansing with water had the side-effect of 'refreshing the hearts of the bathers' (ἀναψύχεσθαι φίλον ἦτορ). The blood of Eurypylos was washed away with warm water after the extraction of an arrow.⁶

The most distinctive cleansing method is the hot-water bath for the male élite and gods. The bathing scheme consisted ideally of all of the following four elements: (1) a hot-water bath (θερμὰ λοετρά) with precious vessels and assistants either in a fixed or portable bathtub, (2) anointment with oil or ambrosia⁷, (3) new clothes, (4) a meal or wine.⁸ The first element was subject to variability, since gods occasionally used ambrosia as a cleansing agent instead of water.⁹ In addition, dead corpses were most

³I follow the dating of Wickert-Micknat 1982, R2 for the Homeric epics.

⁴Hephaistos cleansing himself with a sponge before facing Thetis, his female visitor: Hom. *Il.* 18.414-6. - Trojans rest from battle and gather in city: Hom. *Il.* 22.1-3.

⁵*Diomedes and Odysseus*: Hom. *Il.* 10.572-5. *Agenor*: Hom. *Il.* 21.560-1.

⁶Hom. *Il.* 11.828-32, 844-8. *Contra*: Hom. *Il.* 4.190-1, 217-9; 5.899-904; 11.514-5, 16.528-9.

⁷The use of olive oil after a bath disproves Paszthory's (1992, 43) statement that oil was applied to the body after each bath not before the classical period.

⁸*Ares*: Hot water bath with servant, beautiful rainment (Hom. *Il.* 5.905) *Odysseus and Diomedes*: Hot water bath, oil, meal (Hom. *Il.* 10.576). *Nestor for wounded Machaon*: Hot water bath with servant, wine (Hom. *Il.* 14.3-7). *Bath for Hektor*: Hot water bath with servants, precious vessels. Other elements were not stated, since Hektor was unable to take the bath prepared for him (Hom. *Il.* 22.442-6). - Achilles offered his guest Priam a meal with drinks, a bed, but no hot water bath (Hom. *Il.* 24.621-48), since Priam was grieving over his son Hektor.

⁹The bathing-scene for Hera consisted of ambrosia, perfumed oil, and an ambrosial robe (Hom. *Il.* 14.161-223), but Ares was washed with water (Hom. *Il.* 5.905).

likely not washed within a bathtub-like-receptive.¹⁰ The bathing scene could also be enriched by combing one's hair and adorning the body with jewellery, when the cleansing was undertaken by a goddess (Hom. *Il.* 1.161-223). Jewellery was also a feature of the κόσμησις ἀγαλμάτων for female cult-statues (Kahil 1994, 217). A hot-water bath or the equivalent application of ambrosia was taken to remove clotted blood (ἄπο βρότον αἱματόεντα) or stain (ἀπὸ λύματα πάντα καθαίρειν).¹¹ Taking a hot-water bath was not, however, always motivated by removing dirt. In the divine realm, for instance, Hera cleansed herself with the intention to beautify herself and to increase her grace (χάρις) in order to arouse with the help of Aphrodite love and desire (φιλότης, ἕμερος, ἔρος) in Zeus (Hom. *Il.* 14.198, 315). In the human realm, a hot-water bath signified social status and prestige. It was linked to conspicuous consumption of precious vessels, bathing maids and abundant meat. That a hot-water bath was the only appropriate way of body-care for member of the élite, became also evident in the double cleansing-scene of Diomedes and Odysseus; they took a hot-water bath after they had removed their physical dirt during a bath in the sea.

That cleanliness played a constituent role in defining the self-image of aristocrats can be deduced from the frequent references to the bodies of aristocrats as anointed.¹² The vehemence with which the leading Achaeans urged Achilles, who was grieving for his dead companion Patroklos, to wash the clotted blood from his body, as well as the eagerness with which Achilles attempted to befoul the dead corpse of Hektor, and the eagerness of the gods to guarantee the standards of body-care due to

¹⁰*Corpse of Patroklos*: Warm water, oil, wounds filled with ointment (Hom. *Il.* 18.343-53). *Corpse of Hektor*: Warm water (?) with servants of Achilles, oil, new clothes (Hom. *Il.* 24.582-90, but already cleaned by gods cf. 23.185-7 (anointed with ambrosia); 24.418-23 (washed clean). - The treatment of the corpse of Sarpedon has all the elements of a hot water bathing scheme, including oil, ambrosia, new clothes, but the corpse was washed in the river and not with warm water (Hom. *Il.* 16.667-70, 678-80).

¹¹*Clotted blood*: e.g. Hom. *Il.* 14.7 (Machaon); 18.345 (corpse of Patroklos); 23.41 (Achilles); 24.419 (Hektor, just blood); perhaps also 7.425 (corpses from the battlefield). This may have also been the motivation for Ares to take his hot water bath, though it is not stated explicitly. *Stain*: Hom. *Il.* 14.170. - It has been stated that blood was regarded polluting, in particular, when it was not one's own and that, therefore, all cleansing processes were kathartic (Nilsson 1968, 92). I do not agree with this view for two reasons. First, the verb παλάσσειν with which Hektor referred to his dirty body (αἵματι καὶ λύθρῳ πεπαλαγμένος) could equally persuasively be translated with 'to cover' (but Murray 1946a on Hom. *Il.* 6.268 using 'to befoul'). The other two references to bodies covered with blood used the terms εἰλυεῖν (Hom. *Il.* 16.640) and μιαίνειν (Hom. *Il.* 16.795), which may be translated as 'to be covered with' and 'to be soiled with' respectively, when occurring in the passive voice. In addition, there are no indicators that cleansing of blood by means of a hot water bath was a ritual aiming at the removal of a polluting substance. The hot water bath, which Nestor offered to the wounded Machaon seems to have been rather motivated by the social etiquette among guest-friends than by medical or kathartic aspects (cf. Laser 1983, S116 n. 306; S138 n. 368). In particular, the assistant and the chat over a cup of wine recall the elements of the canonical bathing scheme of the *Odyssey*.

¹²e.g. Hom. *Il.* 2.44 (feet of Agamemnon); 10.22 (feet of Agamemnon), 132 (feet of Nestor); 18.596 (garments of youths). Cf. e.g. Hom. *Il.* 14.186 (feet of Hera), 241 (feet of Sleep); 19.126 (hair of Ate).

a dead member of the elite also hint at the importance of cleanliness among the elite.¹³ The significance of cleansing activities was further stressed by its frequent mention alongside such a basic fact of life as eating.¹⁴ As a hot-water bath seems to have been the only socially accepted way of achieving cleanliness both for the elite and for gods, it may be concluded that Homeric warriors probably quite frequently took a hot-water bath to remove the intolerable dirt incurred in the battlefield. The actual frequency with which members of the social elite took hot-water baths, is, however, difficult to estimate. The matter of course with which Andromache prepared a hot-water bath for her husband Hektor, when she expected him back from the battlefield, not knowing that he was already dead, creates the impression that a hot-water bath was an everyday routine for a warrior from the Homeric elite.

Special attention was drawn to the cleanliness of hands and feet. Clean hands were required for religious contexts, such as sacrifice, a libation and an oath¹⁵ Washing hands (χερνίπτεσθαι) was given a special meaning, since the water poured over hands was to be undefiled (ὔδωρ ἀκήρατον) and was collected in a specific vessel (χέρνιψ).¹⁶ The cultural importance of clean hands for a libation and a prayer was stressed by Hektor, who referred, first, to his unwashed hands before referring to the general condition of his body, which was covered with blood and dirt (λύθος) in order to point out to his mother why he was unable to make a libation to Zeus (Hom. *Il.* 6.266-8). A reference to anointed feet (λιπαρὸς ποῦς) seems to be sufficient to express the status of body-care of the elite and goddesses and unwashed feet (ἀνιπτόποδες χαμαιεῦναι) mark out the Selloi, the holy men of Zeus at Dodona.¹⁷

In the *Odyssey*, the Greek concept of κομιδή (body-care) was applied for the first time to the human realm.¹⁸ It was linked to ἀγλαΐη, sense of beauty, shine or

¹³*Achilles*: Hom. *Il.* 22.405; 23.24-6; 24.17-8, 583-8 (cleansing due to the will of the gods). *Gods*: Hom. *Il.* 23.185-7 (anointed with ambrosia); 24.74-594 (helping Priam to recover the corpse of his son so that he may bury him adequately, which included washing of the corpse), 418-23 (washed and preserved corpse of Hektor).

¹⁴*Negligence of standards of cleanliness and eating during mourning*: e.g. Hom. *I.* 19.303-8, 346; 23.35-47. Achilles treated Priam according to the hospitality codex and offered him a meal and a bed, but not a hot water bath (Hom. *Il.* 24.621-48), perhaps because he accepted Priam's mourning over his son. *Hot water bath and eating*: n. 8.

¹⁵*Sacrifice with prayer*: Hom. *Il.* 1.447-9. *Contra*: Hom. *Il.* 2.400-18, 421-32 (sacrifice and prayer). *Libation with prayer*: Hom. *Il.* 9.171-8; 16.228-32 24.302-13, but Hom. *Il.* 7.480-1; 9.656-7.712; 10.579. *Oath*: In Hom. *Il.* 3.269-301 it is unclear whether clean hands were required for the oath, the libation of wine or the sacrifice which followed the oath. Since the oath was the first action in the sequence of actions, it is likely that the clean hands were required for the oath. - The negligence of cleanliness before a prayer in Hom. *Il.* 15.37-77 may be explained with the fact that the Achaians were under attack.

¹⁶Hom. *Il.* 24.303, 304. Cf. Hom. *Il.* 1.449 (χερνίπτεσθα). Less formal Hom. *Il.* 3.269-70; 6.266; 9.174; 16.230.

¹⁷*Anointed feet*: n. 12. *Selloi*: Hom. *Il.* 16.233-5. Cf. app. B.

¹⁸*Κομιδή*: e.g. Hom. *Od.* 8.232-453; 14.124; 24.249. *Κμιζόμενος*: e.g. Hom. *Od.* 8.451.

brightness (e.g. *H m. Od.* 18.180). The socially accepted way of male aristocrats to achieve κομιδή consisted of a canon of five basic elements¹⁹: (1) λοετρά τε θερμὰ. A warm water bath taken either alone or in groups at home or at a friend's house. Female bath servants use precious bathing implements to pour the warm water over head and shoulders of the bathers. (2) oiling the body (3) εἴματά τ' ἐξημοιβᾶ.²⁰ Changes of clothes consisting of χλαίνα (cloak) and χιτῶν (undergarment). The garments were beautiful (φᾶρος καλὸν) and freshly washed (φᾶρος εὐπλυνες χιτῶν). (4) δαίς. A proper meal or banquet with music and dancing. (5) εὐνὴ. A sleeping place, usually put up in the portico for guest-friends.

Κομοῦν: e.g. *Hom. Od.* 24.212, 390. *Κομίζειν*: e.g. *Hom. Od.* 10.298. *Κομιδή in relation to a planis*: *Hom. Od.* 24.245, 247. *Κομιδή in relation to a d g*: *Hom. Od.* 17.319. Cf. Laser 1983, S135.

¹⁹*Hom. Od.* 8.248-9 (without 3). Cf. *Mentes/Athena at the oikos of Odysseus*: *Hom. Od.* 1.130-55, 309-10 (disappeared before the actual bathing scene); *Telemachos at the oikos of Nestor*: *Hom. Od.* 3.346-53, 464-74; *Telemachos and Peisistratos at the oikos of Diokles*: *Hom. Od.* 3.488-90 (summarised under entertainment due to strangers); *Telemachos and Peisistratos at the oikos of Menelaos*: *Hom. Od.* 4.47-68, 294-303; *Odysseus at the oikos of Menelaos*: *Hom. Od.* 4.252-3 (without meal and rest-place, since he was eager to leave); *Odysseus at the oikos of Kalypso*: *Hom. Od.* 5.264-7 (without oil. Bed offered for the period before the described cleaning scene); *Odysseus at the oikos of Alcknous*: *Hom. Od.* 7.335-45; 8.426-9, 433-7, 449-57, 469-85; 13.17-8; *Odysseus and his companions at the oikos of Kirke*: *Hom. Od.* 10.347-73, 449-52; *Telemachos and Theoklymenos (?) at the oikos of Odysseus*: *Hom. Od.* 17.85-99 (all five elements, if 18.428 referred also to Theoklymenos); *Odysseus disguised as a beggar in his own oikos*: *Hom. Od.* 19.317-22, 327-8 (all five elements); *Telemachos in oikos of Odysseus*: *Hom. Od.* 23.131, 142 (without 2, 4, 5), *Odysseus in his own oikos*: *Hom. Od.* 23.154-63 (without 4, but with a soft bed in 23.289-95); *Corpse of Achilles*: *Hom. Od.* 24.44, 59 (without meal and bed), *Laertes at his own oikos*: *Hom. Od.* 24.365-74, 383-90 (without bed). - Most scholars followed the structure of Arend's (1933, 68-72, 124-6) type-scene which consisted of the elements 1-4 only, including Laser (1983) and Wöhrle (1996). I have added εὐνὴ as a fifth element, since it was mentioned as a constituting part of male aristocratic life-style together with hot water baths, change of clothes and banquet (*Hom. Od.* 8.248-9; 19.317-22.336-42; 24.254-5 (without change of clothes)). In addition, a person who lacked the lack a proper bed and meal was considered ἀκηδηρ, without care (*Hom. Od.* 20.130).

²⁰It is noteworthy that Homer never mentions the use of towels as part of the cleaning process. This may either mean that there was no towel involved in a Homeric drying process, that the clothes covering the freshly washed body took over the function of a towel (Arend 1933, 89-90), or that 'Homer' omitted this detail of the cleaning process. I think that there are good reasons to believe that Homeric people did not use a towel at all at least in the summer-season (Laser 1983, S114 n. 378, S162 n. 428), because 'Homer' used every possibility to describe the distinguishing and luxurious life-style of the Homeric elite. Cloth were considered a luxurious commodity worth several descriptions when manufactured as garments and bedspreads (cf. app. B, n. 8). It is difficult to imagine that Homer left out the opportunity the description of a towel would have given him to evoke an atmosphere of lavishness. It is also impossible to support the assumption that towels were used in Homeric Greece with reference to historical Greece. First, it cannot be taken for granted that habits not change over time. Second, all post-Homeric depictions on vase-paintings which are thought to depict towels together with other bath utensils (e.g. Dayagi-Mendel 1989, 31-2; Crouch 1993, 326 fig. 22.7) depict in fact tied-up garments (cf. e.g. attic-red figured *stamnos* around 430 B.C., CVA Munich (5), pl. 247, Inv.No. 2411; red figured *lekkythos* c. 470-60 B.C. (storage in box), New Haven, Yale University Art Gallery 1913, 146 (depicted in Pekridou-Gorecki 1989, fig. 28)). In fact, an argument drawing upon analogy and continuity would result in the conclusion that towels were not used in Greek antiquity, since Athenaios (686.24), a writer of the second century A.D., stated explicitly that ancient Greeks let the water dry on the body before they anointed it.

Under exceptional circumstances, the bathing-scene may take place in a river at a spot where there was shelter from the wind.²¹

The 'κομιδή-scheme' of female members of the élite and goddesses varied only slightly from that of male nobles.²² A hot-water bath with precious bathing implements and bathing maids was usually followed by anointing the body with oil. The only exception to this scheme is the bathing-scene of Nausikaa, who took a bath in the river while the laundry was drying in the sun.²³ A change of clothes was also an important feature of female body-care. However, eating, entertainment, and taking a rest were not common elements of female κομιδή-scenes. Consumption of food and wine and games with a ball were only mentioned in connection with Nausikaa.

The motivation for washing and bathing in the *Odyssey* varied a great deal. As in the *Iliad*, blood and other disturbing features such as traces from shedding tears were removed by taking a hot-water bath or by cleansing the body with water or ambrosia.²⁴ In the latter case, Penelope's cleansing activity was aimed, as in the case of goddesses in the *Iliad*, at improving her brightness and beauty (ἀγλαΐη) with a view to impressing the suitors and arise passion (ἔρος) in their hearts.²⁵ Penelope's cleansing before the vow may have been due to religious prescriptions and Aphrodite's bath after her love affair with Ares may have aimed at restoring her virginity.²⁶

²¹Hom. *Od.* 6.209-50; 7.295-6 (without 5, but cf. the κομιδή-scene in the *oikos* of Alkinoos in n. 20).

²²*Aphrodite*: Hom. *Od.* 8.364-6 (without a proper meal and a bed); *Penelope*: Hom. *Od.* 17.48-51, 58-60 (without 2, 4, 5. It has been argued that ὕδρα νεσθαί did not refer to a hot water bath, but washing the hands (Nilsson 1968, 148-9; Ginouvès 1962, 311 n. 5, 312 n. 7, but Dimock 1995b). On this assumption, Stengel (1972, 14) stated that a change of clothes was sufficient to signify cleanliness. I do not agree with both points of views. With respect to Stengel's argument, I think it is not valid, because he does not distinguish sharply enough between the *process* which cleanliness is brought about and κομιδή as a *visual means* to express social structure. Clean clothes are but one feature signifying the degree of grooming common among the noble. The processes which lead to this degree of cleanliness were, however, in all cases of the aristocratic κομιδή-scheme related to an entire body bath. As a consequence, I argue that the clean clothes of Penelope hint to a hot water bath. The translation of ὑδρηναμένη as washed rather than hand-washed, can be supported by another detail. Penelope had to go upstairs after she was ὑδρηναμένη. Water for washing hands was usually served in a pitcher and a basin and brought to the guest. Consequently, the hand-washing rite could have taken place in her upper-chamber, where the praying and vowing took place. A cleansing scene on the ground-floor, therefore, rather points to a entire body bath. *Penelope*: Hom. *Od.* 18.172-3, 179 (bath and anointment only, though the cleansing was actually carried out by Athene while Penelope was sleeping (18.187-97).

²³Hom. *Od.* 6.96-101 (Nausikaa). Cf. Laser 1983, S 147 n. 380, who argued convincingly for a bath in the river rather than in the sea.

²⁴*Blood*: Hom. *Od.* 24.189 and 23.131, 142, 154-63, although not explicitly stated as a motivation for the hot water bath of Telemachos and Odysseus after the death of the suitors *Tears*: Hom. *Od.* 18.172-3, 179.

²⁵*Passion*: Hom. *Od.* 18.191, 212. *Beauty*: Hom. *Od.* 18.180.

²⁶*Penelope*: Hom. *Od.* 17.48-51, 58-60. *Aphrodite*: Hom. *Od.* 8.364-6. Cf. Laser 1983, S126 for the interpretation.

The motivation behind and meaning of the hot-water baths, in particular those that were part of the welcoming ceremony among aristocrats, were complex, ranging from the practical to the symbolic. At a practical level, hot-water baths were taken to remove the dust from the streets. In the case of Odysseus' welcoming bath, provided by Nausikaa and her maids, he washed away brine (Hom. *Od.* 6.219). In addition, baths were highly esteemed for they made bathers feel refreshed and gave them pleasure.²⁷ They also changed the appearance of the bather considerably, in particular, when a god intensified the effects of a hot-water bath on the bather, so that he would gleam with beauty and grace (κάλλει καὶ χάρισι στίλβων).²⁸ In contrast to the female κομιδή—scenes, the aspect of beautification was, however, a side effect of a hot-water bath and not the primary motivation for taking one. On a symbolic level, hot-water baths taken as part of the welcoming ceremony, improved or restored the appearance of the élite to a degree which made them, among other features, easily recognisable as the ruling class. They not only changed the outer appearance of people, but also, in combination with other constituting elements of κομιδή, enabled the élite to live up to the demanding code of physical fitness and excellence.²⁹ Consequently, it may be argued that hot-water baths were taken by the élite to be in the position to keep up the high standards of appearance and physical fitness expected of them. Under exceptional circumstances, the decision between providing a bath or not may mean a decision for life or death. Nausikaa pointed out to Odysseus that he owed his life to her (Hom. *Od.* 8.462, 469). By this, she did not seem to allude to the instructions she gave to Odysseus on how to reach the palace of her parents, but rather to her providing a bath for him, which re-incorporated him into aristocratic society and which obliged Nausikaa to take care of him.

As in the *Iliad*, the process of cleansing was linked to social hierarchy. It had to involve conspicuous consumption to be a socially accepted way of cleansing. In contrast to the *Iliad*, cleanliness was linked more explicitly to concepts of appearance, 'social visibility' and 'social recognition'. Apart from the use and display of artefacts made of precious materials and beautiful objects, visual manifestations of κομιδή were a means to construct an 'order of appearance' that allowed the relevant social economic facts to be read from visible signs.³⁰ The degree of grooming reflected and

²⁷Hom. *Od.* 1.310; 10.363. Cf. Odysseus' remarks on the effects of a footbath (Hom. *Od.* 19.343); Arend 1933, 125.

²⁸Hom. *Od.* 6.237. On humans resembling the immortals after a bath cf. e.g. Hom. *Od.* 3.468; 16.183, 200; 23.163; 24.371.

²⁹Odysseus stated the lack of κομιδή during his ship journey as the main reason for his inability to take part in the athletic competition (Hom. *Od.* 8.232-3).

³⁰Criteria such as form and stature (εἶδος καὶ μέγεθος; δέμας or inner values for assigning people to certain social groups were only introduced, when nobles did not have the degree of κομιδή, which would have been adequate to their social status. Odysseus, for instance mocked at his father whose degree of κομιδή rather resembled that of a slave than that of a noble, but referred

constituted the social structure divided into poor people (e.g. seaman, beggars (πτωχοί), vagabonds (ἀλήτες), and slaves), the élite (ἀγαθοί), and gods.³¹ Poor people lacked body-care.³² They were squalid, unwashed, not anointed with oil and clad in defiled clothes.³³ Visible manifestations of the aristocratic level of κομιδή, which was valid among Greek and non-Greek nobles, included clean and freshly washed clothes in a good condition and an anointed body.³⁴ The significance of freshly washed clothes for a proper appearance of the élite and a 'good report' of individuals was explicitly stated by Nausikaa.³⁵ The divine level of κομιδή was characterised by constant grooming (ἔμπεδος κομιδή; Hom. *Od.* 8.450-3). An exact description of the appearance of gods was not given, but they may be thought of as clad in clean divine clothes from which fragrant oil of supreme quality would drop constantly.³⁶

then to Laertes' form and stature as typical for a member of the élite (Hom. *Od.* 24.250-3). In addition, Odysseus, who could not keep up with the appearance of the suitors as long as he was disguised as a beggar, was described as being exceedingly well-built like a man of the élite (Hom. *Od.* 21.3345), being like a royal prince in form (Hom. *Od.* 20.194), and as a man who was superior in his manners to the suitors (Hom. *Od.* 18.143-5; 20.29, 33, 171, 386; 22.64). Cf. Hom. *h.Cer.* 213-5 (h. 2), where Demeter disguised as an old woman was considered a nobly born person due to her χάρις and αἰδώς in her eyes. - Poor people did not have access to precious raw material, but used objects with holes (e.g. Hom. *Od.* 13.437; 17.197-8, 337; 18.108-9), were clad in tattered and poor garments (e.g. Hom. *Od.* 4.245; 11.191, 13.399-400; 14.342-3, 349, 506, 512; 16.199, 457; 17.24, 203, 338, 572-3; 18.41, 647, 74; 19.72, 327, 507; 20.206; 21.221; 22.1; 23.95, 115; 24.156, 158, 250. Cf. app. B; II.2.2) and were either barefoot or wore sandals (e.g. Hom. *Od.* 18.361; 21.341). Members of the élite lived in beautiful houses (e.g. Hom. *Od.* 20.122; 23.259; 24.214), used objects made of expensive materials such as gold and silver (e.g. Hom. *Od.* 7.172-4; 13.10-1; 15.136), were clad in extraordinary and beautiful clothes (e.g. Hom. *Od.* 13.218; 14.500; 15.60-1; 19.225-31; 24.367) and wore beautiful sandals (e.g. Hom. *Od.* 2.4; 4.309; 17.2; 20.126). Gods used objects made of precious metals (e.g. Hom. *Od.* 5.231-2; 10.544-5; 16.172, 185; 24.3) and were clad in extraordinary clothes (e.g. Hom. *Od.* 5.230-1; 10.543-4) and wore golden sandals (e.g. Hom. *Od.* 1.96-7; 5.44-5). Although the objects and clothes were often made of the same materials as those used and worn by humans, they could be easily identified as immortal or ambrosial (e.g. Hom. *Od.* 24.59-67).

³¹*Seaman*: Hom. *Od.* 13.399-400, on πτωχοί cf. e.g. Hom. *Od.* 16.209, 273; 17.18, 202; 21.327; 24.157, on cf. Hom. *Od.* 20.377, and on slaves cf. 24.252. *Άγαθοί*: e.g. Hom. *Od.* 15.324.

³²*Lack of κομιδή*: e.g. Hom. *Od.* 14.124; 21.284; 24.249, 251.

³³*Unwashed/squalid*: Hom. *Od.* 19.72 (ῥυπόειν); 23.115 (ῥυπόειν); 24.250 (λυγρόν ἔχεις αὐχμεις), but not 19.327, since ἀυσταλέος meant rather parched and shrivelled according to LSJ than unkempt, as Dimock 1995b suggested and not 20.377, since ἐπίμαστος meant rather seeking for, hence needy than filthy, as Dimock 1995b suggested. *Not anointed, hence dirty*: Hom. *Od.* 21.341. *Dirty clothes*: e.g. Hom. *Od.* 13.435 (χιτών, ῥωγαλέος ῥυπόεις, κακῶ μεμορυγμένος καπνῶ); 24.227 (ῥυπόεις χιτών).

³⁴*Oily appearance and clean clothes as metaphors for cleanliness out of Greece*: e.g. Hom. *Od.* 8, 248-9. *Clean clothes*: e.g. Hom. *Od.* 4.750, 759 (καθαρά εἶμαθ'); 6.59 (νεόπλυτα εἶμαθ'), 61 (καθαρά εἶμαθ'); 8.392, 425 (φᾶρος ἐυπλυνῆς χιτών); 13.67 (φᾶρος ἐυπλυνῆς χιτών); 16.172 (φᾶρος ἐυπλυνῆς χιτών), 17.48, 58 (καθαρά εἶμαθ'); 24.147-8 (πλυνειν φᾶρος). *Anointed feet*: Hom. *Od.* 2.4 (élite); 4.309 (élite); 13.225 (Athene in likeness of Mentor); 17.410 (élite); 20.126 (élite), but not 17.2. *Anointed heads and faces*: Hom. *Od.* 15.332.

³⁵Hom. *Od.* 6.29-30 (ἔσθλή φάτις), 60 (ἔοικε). Cf. Bourriot 1995; Wohrle 1996. Contra: Weiler 1997, 195.

³⁶*Clean clothes*: The description of Calypso's garment as silver-white (φᾶρος ἀργύφειον) in Hom. *Od.* 5.230; 10.543 may be taken as a reference to a clean garment. In addition, the clean clothes of Odysseus, which Athene gave to him, seem to have played a crucial role in adjusting his

In a society in which the outward manifestation of a person had special significance, the elite only gave up the distinguishing marks of body-care in exceptional circumstances, including grief and undercover work, while it was relaxed in adopting modes of appearance and cleanliness typical for the divine realm.³⁷ Deities, by contrast, who adapted frequently human features and appeared either as nobles or as beggars seem to have been far more relaxed in temporarily accepting lower standards of body-care.³⁸ In the case of commoners, social control seems to have secured that they would not normally indulge in hot-water baths, as they were restricted to the aristocratic life-style. In fact, there is only one example, in which a beggar was offered a hot-water bath and a new set of clothes and in this case the beggar was not a real one, but a disguised nobleman.³⁹ His new social appearance enabled him to participate at the social events of the elite rather than begging for alms.⁴⁰ The instructions of Odysseus after the death of the suitors create the impression that social appearance was rather controlled by the elite, since Odysseus preserved the exclusivity of a hot-water bath and fresh clothes to himself and his son, whereas the surviving loyal members of his household had to put on their old clothes.⁴¹

Apart from the cleanliness of the entire body, special attention was drawn to the cleanliness of feet and hands of male nobles. Anointed feet could signify as a *pars pro toto* a well-groomed person.⁴² Hands were frequently washed with special water (χέρνιψ).⁴³ Cleaned hands (χεῖρας νιψόμενος) were usually required for libation, sometimes followed by a prayer, for pre-sacrificial rites, for prayers, but not for oaths and vows.⁴⁴ In contrast to the *Iliad*, hands were also cleansed with water before

appearance to that of a god (Hom. *Od.* 16.172-9). *Quality of oil*: app. C, s.v. perfume. *Dropping from clothes*: Description used for the Phaeacians (Hom. *Od.* 7.117) held to be near of kin to the gods (Hom. *Od.* 5.35; 7.204-6). *Frequency*: Hom. *Od.* 15.332 nobly born servants of suitors).

³⁷*Grief*: Hom. *Od.* 18.173-84 (Penelope who did not want to remove the traces of tears); 24.227-34, 249-50, 315-7 (Laertes). *Undercover-work*: e.g. Hom. *Od.* 4.244-50 (Odysseus in Troy); 13.433-8 (Odysseus at Ithaca). *Humans resembling gods*: e.g. Hom. *Od.* 2.5, 259; 4.121-2, 310; 5.36; 6.15-9, 149-52, 309; 7.4-5, 291; 8.14, 174; 15.63, 414, 519-20; 17.3, 36-7, 54; 19.54, 279; 20.124; 23.339. *Humans resembling gods after cleaning*: e.g. Hom. *Od.* 3.468; 16.183, 200; 23.163; 24.371. *Humans enjoying a divine degree of bodily care*: e.g. Hom. *Od.* 8.450-3; 16.172-9.

³⁸*Athene*: e.g. Hom. *Od.* 13.221-86 (noble herdsman), 287-440 (noble woman); 16.157-77 (woman).

³⁹Penelope proposed to give Odysseus a new set of clothes in Hom. *Od.* 17.557-8, but did not mention it when offering a hot water bath to Odysseus (Hom. *Od.* 19.320).

⁴⁰*Old status*: Hom. *Od.* 19.321-2. *New status*: Hom. *Od.* 17.51-2.

⁴¹*Telemachus and Odysseus*: Hom. *Od.* 23.131, 142, 154-63. *Hand maid*: Hom. *Od.* 23.133.

⁴²*Anointed feet*: ns. 12, 17.

⁴³Hom. *Od.* 1.136; 3, 440, 445; 4.53; 7.172; 10.368; 15.135-179. *Χέρνιψ* meaning *water and vessel*: Laser 1983, S152.

⁴⁴*Libation with or without prayer*: e.g. Hom. *Od.* 3.337-44; 21.270-2, but not 2.431-3; 3.43-54, 62-4, 390-5; 7.136-8 (but perhaps the purificatory rite had been carried out before Odysseus entered the scene); 13.53-62; 14.447; 15.148-53 (but hands had been cleaned before eating); 18.151-2, 423-8. Cf. Laser 1983, S150. *Pre-sacrificial rites*: e.g. Hom. *Od.* 3.440-6; 14.422-4. *Prayers*:

eating.⁴⁵ Interestingly, there are no passages describing the cleaning of the fatty hands after the meal. The cleanliness of the hands was of a different nature than that of the entire body, because in some cases the cleansing of hands followed a hot-water bath and clean hands (and feet) would not entitle members of the élite to withdraw from a hot-water bath.⁴⁶ The significance of clean hands and feet rather than a cleansed body was emphasised in the passages after the killing of the suitors in the house of Odysseus, when the hands and feet were cleansed long before Odysseus and Telemachos took a hot-water bath.⁴⁷

In contrast to the *Iliad* and the *Odyssey*, the *Homeric hymns* shed light on the cleansing habits of male immortal and mortal infants as well as of goddesses. The mortal son of Keleus was anointed with ambrosia while nursed by Demeter, but washed with water when granted human bodily care.⁴⁸ The mention of the distinctive bathing implements of gods and humans was probably intended to draw attention to the different degrees of κομιδή, which was one feature with which social status was expressed. This assumption can be supported by the fact that Apollo as *pais* and Hermes as *pais* were both washed with water. Whereas Hermes was bathed in hot water, Apollo was washed with sweet water and was clad in extraordinary, new-woven garments immediately after his birth.⁴⁹ That the process of cleansing was also connected with conspicuous consumption in the hymns can be deduced from the fact that bathing implements were stored together with precious metal vessels in the house of Apollo at Pytho (Hom. *h.Merc.* (h. 4) 178-81).

The most elaborate cleansing scene involving goddesses referred to Aphrodite. Cleansing was carried out with the intention of beautifying Aphrodite and of increasing her sexual attractiveness, for Anchises was seized with love by looking at her.⁵⁰ Apart from the common features of a κομιδή-scene, including servants to assist with a hot-water bath, anointing oneself with oil and putting on clothes, this scene was enriched with the use of a kind of perfume (ἔλαιον ἄμβροτον, τό τεθυωμένον ἦεν) and of jewellery.⁵¹ Both elements were also described in the

e.g. Hom. *Od.* 2.260-1; 12.335-7 but not 20.97-101; 24.521. *Not for oaths and vows*: e.g. Hom. *Od.* 2.377-8; 10.345-6; 17.48-51, 58-60 (clean body, but no hand-washing); 20.227-34. Cf. Ginouvès 1962, 311 n. 5; 312 n. 7.

⁴⁵Hom. *Od.* 1.136-8, 146-8; 4.52-4, 212-7; 7.172-4; 10.182-3, 368-70; 15.135-7; 17.91-3, but not Hom. *Od.* 4.428-9; 8.470-6, 10.233-5; 15.500; 16.1-3, 479-81. Cf. Laser 1983, S149 n. 384.

⁴⁶*Hands washed after hot water bath*: Hom. *Od.* 4.48-54; 10.358-70; 17.85-93. Cf. Ginouvès 1962, 152. *Hands (and feet washed) before a hot water bath*: Hom. *Od.* 22.478, 23.131, 142, 154-63.

⁴⁷Hom. *Od.* 22.478, 23.131, 142, 154-63.

⁴⁸Hom. *h.Cer.* (h. 2) 235-8 (divine), 289-90 (human).

⁴⁹*Hermes*: Hom. *h.Merc.* (h. 4) 268. *Apollo*: Hom. *h.Ap.* (h. 3) 120-2.

⁵⁰Hom. *h.Ven.* (h. 5) 91. *Effect n men*: Hom. *h.Ven.* (h. 6) 16-8.

⁵¹Hom. *h.Ven.* (h. 5) 61-5, 86-90, 162-6.

κομιδή—scene of Hera, where she prepared herself for seducing Zeus (Hom. *Il.* 14.161-223). Thus, odours and jewellery were considered important elements to improve the beauty of and sexual desire for goddesses. Both features were unnecessary for divine cleansing activities after a love-affair (Hom. *Od.* 8.359-65). The bath of Selene was not a hot-water bath, since it was taken in the waters of the Ocean (Hom. *h.Lun.* 7 8). It was most likely a poetic description of the image of the moon mirrored on the surface of the sea. Although there are not many references to body-care, cleanliness played a crucial role in the realm of gods, since it was considered as essential a feature of life as eating.⁵² Negligence was only tolerated under exceptional circumstances such as grief, or in connection with gods such as Pan, who was half animal and half human.⁵³ References to modes of cleanliness as means of social differentiation are rare due to the topic of the hymns. They did, however, underlie the social structure of Homeric society. When Demeter operated in the human realm and took care of the son of Keleus, the child got used to the divine level of κομιδή (Hom. *h.Cer.* (h. 2) 235-8).

There is no account of the spatial setting of the hot-water baths in the Homeric works. The foot-bath took place in the *megaron* of Odysseus, but there is no similar hint as to whether a room on the ground floor was set apart as a bath room in at least the most exclusive Homeric *oikoi*.⁵⁴ More specifically, it is unclear whether the bathtub (ἄσάμινθος), in which the élite took a hot-water bath was a movable bathing implement or whether it was permanently integrated into bathrooms.⁵⁵ The term ἄσάμινθος is a non-Greek term, it has been argued, and can be linked to the excavated bath rooms of the Cretan and mainland palaces.⁵⁶ This assumption can be supported by the characterisation of the ἄσάμινθοι at the *oikos* of Menelaos and that at the *oikos* of Odysseus as well-polished (ἐϋξέστοι), since this term may also refer to objects made of stone.⁵⁷ There is, however, another reference to two bathtubs made

⁵²Hom. *h.Cer.* (h. 2) 47-50. Cf. Hom. *h.Cer.* (h. 2) 235-8; *h.Merc.* (h. 4) 267-8; sleep, nourishment and hot water baths).

⁵³Grief: Hom. *h.Cer.* (h. 2) 47-50. Pan: Hom. *h.Pan.* 6 characterised Pan as ἀῶχηρής (squalid).

⁵⁴Foot-bath: Hom. *Od.* 19.386. - The hot water bath of Penelope took place on the ground floor, since Penelope ascended to her chamber after bathing (Hom. *Od.* 4.750). - The *oikoi* of the Homeric élite varied considerably. Among the Greek *oikoi*, the *oikos* of Menelaos exceeded by far the other palaces of the élite (Hom. *Od.* 4.45 6; its wealth impressed even the nobly born youth Telemachos (Hom. *Od.* 4.47). If there was a Greek *oikos* with a bathroom and it was not part of a standard equipment, the *oikos* of Menelaos was the most likely one to have a separate bathroom.

⁵⁵Ἀσάμινθος: Hom. *Il.* 10.576 (probably at the hut of Diomedes or Odysseus); Hom. *Od.* 3.468 (Telemachos at the *oikos* of Nestor); 4.48 (Telemachos and the son of Nestor at the *oikos* of Menelaos); 8.450 (Odysseus at the *oikos* of Alkinoos); 17.87 (Telemachos and Theoklymenos (?) at the *oikos* of Odysseus).

⁵⁶Laser 1983, S144 with n. 377a, but Wohrle 1996, 158-61 arguing that the bathing implements and the guest-host friendships reflect geometric to early archaic habits of the élite.

⁵⁷Hom. *Od.* 4.48 (Menelaos); 17.87 (Odysseus). - On (ἐϋ)ξέστος and ἐϋξοος for chairs, doors, and bows cf. e.g. Hom. *Od.* 16.408; 17.602; 19.101, 586; 21.92, 137, 281, 326, 336; 22.71; 24.408. - On ἐϋξέστος for the threshold (ουδός) at the *oikos* of Odysseus which was made of

of silver (H m. *Od* 4.126-8). Menelaos received them as gifts from Egypt and stored them among his treasures. The bathtubs do not seem to have been typical Egyptian objects, because the portable bathtubs were not referred to as oddities. The idea that the bathtubs were Greek bathing paraphernalia can further be supported by the observation that Menelaos received from Polybos also other, typical Greek gifts, including a *cauldron*. As Menelaos kept the silver bathtubs stored, he appears not to have had a separate bathroom.⁵⁸ The reference to both fixed bathtubs in a separate room made of stone and portable, silver bathtubs, which probably were taken out whenever needed, may indicate variability in the setting of bathing in various *oikoi*.

To conclude, cleansing modes and methods do not vary considerably in the various Homeric epics. Membership of the Homeric social elite was signified in all three epics by an anointed body covered with clean and freshly washed clothes in good condition.⁵⁹ A possible reason why an anointed body provided a fundamental criterion for social status may have been its association with being a shining body, which was linked to the positive values of radiance, heroism, light and illumination, as opposed to the negative values of shadow, darkness and death (cf. Vernant 19990). Κομιδή (cleanliness and body-care) was considered by the gods and the elite a component of life as basic as eating.⁶⁰ Cleanliness was part of the self-image of the gods and the elite by which they could gain a 'good report' (ἔσθλή φάτις; Hom. *Od*. 6.29-30). Its negligence, together with the other elements forming part of the κομιδή, would not allow the elite to live up to the demanding code of physical excellence (e.g. Hom. *Od*. 8.232-3). However, by itself a high degree of cleanliness did not guarantee general acknowledgement as a member of the 'best' in the society, since it had to be accompanied by a combination of interrelated factors, including conduct, wealth and birth.⁶¹ It is noteworthy that the social significance of a clean outward appearance is discussed along similar lines in classical tragedies evoking a mythical past, namely Euripides' *Electra* (cf. Hawley 1998, 48-50).

The aristocratic and divine degree of cleanliness was not achieved by changing clothes and anointing the body alone. It also involved hot water or ambrosia and the display of status by using precious bathing implements and servants. Sweat could be wiped away or removed in the sea, but socially acceptable cleanliness could only be

stone (Hom. *Od* 17.30) cf. Hom. *Od* 18.33 Cf. LSJ s.v. ξέειν; Ginouvès 1962, 46-7.

⁵⁸Ginouvès 1962, 151, 156, 159-60 took a separate bathroom for granted. Rider 1964, 171 stated that all Homeric *oikoi* had a bathroom, but she had to admit later (p. 183) that this is only an assumption.

⁵⁹*Social connotation of cleanliness*: e.g. Neumann 1992, esp. 72; Parker 1996, esp. 68.

⁶⁰*Kομιδή-scheme inclusive meal*: ns. 8, 20, 57. *Grief including negligence of eating and bathing*: ns. 14, 58.

⁶¹The beggar Odysseus achieved the aristocratic level of κομιδή, yet was not considered equal to the noble. Membership in the Homeric elite: Martin 1996, 42.

achieved by means of a hot-water bath or the use of *ambr sia*. The distinguishable odour of perfumes seems to have been available to gods only (app. C, s.v. perfumes). The social value of cleanliness, moreover, was not restricted to the living, but also included dead corpses of warriors. Personal cleanliness was not restricted to male members of Homeric society, but also included women. The female realm of *κομιδή* was, however, nearly exclusively linked to beautification and the preparation for sexual intercourse both in the human and the divine realm.

How far the elite kept up to the ideal standards of cleanliness, it is difficult to say. More specifically, it is difficult to estimate how frequently the social elite took a hot-water bath. Ginouvès statement that hot-water baths were only taken at certain social occasions, for instance, as part of the welcome and farewell codex of the guest-host-friendship has been influential.⁶² That personal cleanliness was not a particularly important issue for the Homeric elite in practice may be supported by the fact that Kirke had intercourse with Odysseus, who had been travelling, before offering him a hot-water bath. There are, however, other scenes, which imply that personal cleanliness was taken seriously also in practice. Telemachos, who arrived during the sacrifice carried out by Nestor, was washed immediately afterwards. More important, the only bathing scene described during Odysseus stay with Kalypso is the farewell bath, but when Odysseus referred to this time he emphasised the constant grooming he enjoyed.⁶³ Consequently, I argue that the epic structure allowed only for personal cleansing processes to be mentioned in certain social occasions, but they must be thought of more frequently.

ARCHAIC PERIOD

For the archaic period, literary sources, namely Hesiod and Semonides, and archaeological sources such as statuettes, vase paintings and architectural remains of public baths provide information on cleaning processes and their social and architectural setting. I will, first, discuss in more detail Hesiod and Semonides' references to personal cleanliness with a view to shedding light on the cleansing habits of less privileged groups and to comparing them to the Homeric ideal of *κομιδή* and the ways in which it should be achieved.

Hesiod was a Boeotian farmer about whose exact social status there have been and continues to be disagreement. He presents himself in the *Works and Days* as possessing a considerable amount of animals, but his farm does not seem to have

⁶²Ginouvès 1962, 156-81; followed by Illi 1987, 162. Cf. Lewandowski 1960, 82.

⁶³*Farewell*: Hom. *Od.* 5.264-7. *Constant groom*: Hom. *Od.* 4.450-3

produced any surplus, since he felt constantly threatened by famine and poverty.⁶⁴ Consequently, his social position as imagined in his works was somewhere in between the postulated extremes of a 'poor peasant' and a well-off aristocrat.⁶⁵ Consequently, Hesiod's remark on personal cleanliness may be taken to illuminate cleaning habits of archaic Boeotian peasant life around 700 B.C.

Hesiod (*Op.* 520) stated that girls stayed at home during the winter and enjoyed bathing in warm surroundings, whereas the farmer had work to do outside in the cold. This passage plays with the gendered oppositions leisure/pleasure and hard work as well as consumption and productivity which are well attested in the work of Hesiod.⁶⁶ He did not mention how frequently hot-water baths were taken and as to whether this form of cleansing was reserved for the cold period of the year. Hesiod was, however, concerned with using the right bathing implements and sticking to the right bathing order. The bathing implements had to be consecrated to avoid punishment (πoιvή) and men should not use the same bathing water as women (*Hes. Op.* 746-7). The latter point may indicate that bathing usually took place at one particular day for the entire *oikos*. In the divine realm, Muses bathed themselves in holy rivers and sources before dancing and feasting.⁶⁷ Both the practice of taking a bath in rivers and cleansing before participation in a feast may also have applied to the human realm.

As with Homeric people, clean hands were required for sacred occasions such as libation offerings with prayers (ἀραί) and for contact with sacred elements such as rivers.⁶⁸ In the aristocratic realm, clean hands were an essential requirement for participants in a symposium, in particular when it was explicitly devoted to the gods.⁶⁹ Whoever faced the sacred with unwashed hands (χερσὶν ἀνίπτοισιν) would burden himself with the wrath of the gods and would not get his prayers fulfilled. The cleanliness required for religious contexts included explicitly an absence of κακότης which had a strong moral connotation (*Hes. Op.* 739).

Semonides (*fr.* 7 (West), cf. app. G.1) discussed in detail the cleanliness, appearance and self-presentation of women in his moralising typology of women of the second half of the seventh century. He used animal metaphors and in two cases references to

⁶⁴*Livestock*: Isager-Skydsgaard 1995, 84. *On instructions to rationise food*: *Hes. Op.* 363.

⁶⁵Cf. Spahn 1977, 30. *Contra*: e.g. Stein Holkeskamp 1992, 40 (non-aristocratic peasant); Himmelmann 1996b, 52 (poor, underprivileged peasant); Millett 1984, (peasant). For a recent, brief discussion cf. Tandy 1997, 205-6.

⁶⁶*Attitudes towards women in Hesiod*: e.g. Lloyd-Jones 1975, 19-20; Zeitlin 1996.

⁶⁷*Bathing*: *Hes. Th.* 5-8. *Dancing as a metaphor of feasting*: Laser 1983, S146, 147.

⁶⁸*Libation*: *Hes. Op.* 723-4. *River*: *Hes. Op.* 735-40.

⁶⁹*Xenoph. fr.* B1 (West; ap. Ath. 462C). Cf. Lissarrague 1990a, 26-7.

spatial and personal cleanliness to characterise different types of women and to construct an ideal and normative code of conduct.⁷⁰

At the low end of the scale is the woman who has the mind (*νόος*) of a long-bristled sow and who does not follow the basic rules of bodily cleanliness. She was portrayed as neglecting the house and herself and sitting by the heap of *kopros*. This disagreeable kind of woman neglects basic rules of bodily cleanliness in that she does not wash herself (*ἄλουτος*) and is clad in unlaundered clothes (*ἀπλύτα εἴματα*). The other extreme of the scale of bodily cleanliness is typical for women associated with a proud mare with long mane. 'Mare-women' wash themselves two or even three times every day, rubbing themselves with scents (*μύρα*) and always having their hair combed and garlanded with flowers.⁷¹ In contrast to 'sow-women', 'mare-women' are obsessed with making themselves splendid and beautifying themselves (*ἀγλαΐζειν*) and being a fine sight for men. They are, however, as disagreeable a kind of woman as those made from sows. Women who are only interested in *ἀγλαός* are not ideal wives for men of the élite, but for tyrants and other political leaders who show interest in such things. They were regarded as unsuitable wives, because hand in hand with their obsession for personal cleanliness went a negligence of their duties within the *oikos*, including food preparation, keeping the *oikos* in order and removing *kopros*. For men like Semonides, 'mare-women' were not desirable as wives, because they set their mind not on the *oikos* and family values, but on their exterior. This interpretation is supported by the kind of women made from a bee which makes a good wife. They are beautiful (without spending too much time on their beautification), produce families and do not show interest in spreading rumors.

In terms of female cleanliness, Semonides followed the basic lines set out in the Homeric epics. When he stated that the degree of cleanliness of a 'mare-woman' may suit the upper-élite, but is unsuitable for men of his class, he acknowledged that different degrees of personal cleanliness characterised different social strata. More specifically, Semonides would probably agree with Homer that *ἀγλαός*, and permanent *κομιδή* were restricted to the upper-élite. The only difference between Homeric and early archaic Greece seems to have been the availability of perfumes. While access to fragrant oils was highly restricted in the Homeric period, it was a common means to enhance beauty among women and men (cf. app. C, s.v. perfumes).

⁷⁰Out of ten kinds of women, eight were made from animals and two others from earth and sea. The usage of animal metaphors has a long tradition. Homer made use of animal metaphors and Phokylides of Miletos (fr. 2) matched different types of women with different types of animals (dog, bee, pig, mare). Cf. Franyó & Gran 1981a, 8.

⁷¹*Combed hair*: Asios fr. 206 (Bergk; ap. Ath. 525E-F).

As a result of Semonides' interest in women who do not belong to the upper-élite, he illuminated cleaning practices hardly tackled by Homer. Semonides' criticism on women who did not wash themselves at all and those who washed themselves up to three times per day set the limits within which the ideal frequency of washing routines has to be sought. As he did not define the upper limit with daily cleansing routines, but with washing oneself three times a day, it is in my opinion reasonable to argue that regular, perhaps daily washing was regarded the norm. It is noteworthy that another fragment of Semonides (*fr.* 10A, cf. app. G.1) survived, in which he tackled the proper degree of cleanliness of men, which lies in the middle between being unwashed, unkempt and unlaundered and being crazy about washing.

Apart from literary evidence, archaeological data reveals insight into an understanding of archaic cleanliness and cleansing activities. It is, however, necessary to consider carefully which kind of information can be deduced from statuettes and vase-paintings depicting bathers. Fittà (1998, 65), for example, interpreted one of the oldest terracotta statuettes depicting and representing a bather, which was dated to the seventh century, as a depiction of an everyday-routine. However, it is also possible that the statuette depicts a bathing occasion, which had a special significance to the dead, in whose grave it was found. More specifically, the bathing-scene may refer to a special social event such as the marriage bath, may signify social status or express the wish of the bereaved that dead may not lack personal cleanliness. Consequently, the terracotta statue may be taken to show the social importance of cleanliness for the dead, which can also be deduced from grave offerings such as *aryballoi* and *lekythoi* or perhaps also from the use of bathtubs as *sarcophagoi* in some cemeteries and literary sources.⁷² However, it may not be interpreted in more specific terms. Similarly, the depictions of female bathing scenes on vase paintings have been taken to document cleansing activities of Athenian upper class women. A thorough contextual analysis of these scenes by Manakidou (1992-3) showed, however, that women's activities were presented through the medium of the 'male gaze'. She argued that female cleansing scenes were not depicted on *hydriae*, which were wedding gifts and used most likely for the wedding bath by bride and groom, but on *amphorai* and *olpes* used in the symposium. Consequently, the naked female bathers did not depict

⁷²*Ves els*: e.g. Scheibler 1995, 36. *Anointing grave monuments as personal cleanliness*: Hagg 1992, 175. *Bathtubs*: Ginouvès 1962, 32-41 (evidence); Carter 1998b, 60, 103, cf. Kunze-Gotte *et al* 1999, esp. 1. In accordance with Ginouvès' list, *sarcophagoi* in the shape of bathtubs were most common in Sicily. Thus, it may be concluded that bathtub-like *sarcophagoi* were a Sicilian way of providing the dead with means for personal cleanliness, as it was typical for mainland Greece, namely Athens and Corinth, to provide the dead with oil. This hypothesis would need to be falsified by means of a systematic study of distribution patterns of oil-flasks, *sarcophagoi* in the shape of bathtubs and bathtubs. *Literature*: e.g. Ginouvès 1962, 239-64.

'decent' Athenian women performing washing routines, but most likely *hetaeras* who beautified themselves and prepared themselves for sexual intercourse.

Some terracotta figurines of the eighth or seventh century (pl. 14.1) and black figure vase-paintings from the last quarter of the sixth century B.C. (pl. 14.3) testify that showers, footbaths, bathtubs and other bathing paraphernalia were important elements of ancient Greek life. These images depict bodily cleansing scenes as gendered communal activities (cf. Ginouvès 1962). Most male washing-scenes have been interpreted in terms of cleansing and refreshing activities after athletic competitions. Consequently, the washing facilities have to be thought close to the sports ground.⁷³ The bathing facilities depicted on vases include wash basins and bathing houses with cold, continuously running water (pl. 14.3). As the showers were served with water, they had to be connected to a water supply system, which had been erected in many *poleis* and islands, including Athens and Samos, under the tyrants. The trees between which the washing house is located may signify a location within a natural, not a built environment. This particular cleansing scene (pl. 14.3), need not necessarily depict athletes, I think, but could also depict a cleansing scene outside of the context of a palaestra. The oldest architectural remains for a bathing facilities near an exercise ground can be found in Olympia in the early fifth century B.C. (pls. 15.1-2).⁷⁴ It was a kind of swimming pool, which was altered in the subsequent phases. Before this swimming pool was built in Olympia, athletes probably have used the nearby rivers for cleansing and refreshing purposes.

Archaic vase-paintings give evidence that young women also took showers in bathing houses with continuously running water (pl. 16.1). Thus, the building programme of the tyrants also changed considerably the everyday cleansing habits of women. It is noteworthy that washing was only permitted in bathing houses, but not in fountain houses, though not every body seem to have obeyed this rule (pl. 14.2). Apart from public built environments, bathing took place at home with movable bathing implements (pls. 16.3-4). There are also a couple of vase-paintings showing swimming and cleansing scenes of women in a natural environment, either a waterfront with rocks or a cave (pl. 16.2). It is unclear which kind of women were thought to be swimming naked and cleansing their hair in nature scenes.⁷⁵ Interpretations brought forward included nymphs, with respect to the setting of this scene, and *hetaeras* with respect to the context in which the vessel was used on which

⁷³Public washing facilities: Ginouvès 1962 21, 41.

⁷⁴Schleif 1944, 40-3. Cf. the Campus Martius in Rome where Romans would refresh and cleanse themselves after physical exercises in the Tiber (Her. Carr. 184-7; 3.7.25-8).

⁷⁵Swimming and diving are quite likely interpretations, cf. Tomba del Tuffatore in Paestum of the early fifth century B.C. (Napoli 1970).

this image was painted (cf. Manakidou 1992-3). I find the latter interpretation more compelling, taking into account that many of the depicted women took care of their hair and that hair was an important hallmark of feminine beauty and sexual attractiveness.⁷⁶ The depiction of *hetaeras* involved in cleaning activities may have been interpreted by the symposiasts looking at them in the context of the symposion, as depicting women who transform their bodies into objects of desire. If so, these images may have played an active role in structuring the expectations of the symposiasts towards the feminine participants of a symposion, the courtesans. This would also imply that the motif of female washing activities enhancing feminine beautification and sexual attractiveness, which was already deployed, both within and outside of marriages, in the Homeric epics, was still valid in archaic Greece.

It is noteworthy that personal cleanliness was not only crucial for the living, but also for the dead. Measures undertaken to ensure the high standards of cleanliness of the dead included the washing of the dead, a practice already well documented for the Homeric period. From the orientalisising period, the dead were also provided with *aryballoi* containing probably perfumed oils (Shanks 1999, 42). It is also possible that the use of bathtubs or sarcophagi in the shape of bathtubs can be interpreted in terms of permanent grooming in the afterlife.⁷⁷

Apart from water and substances dissolved in water to increase the degree of bodily cleanliness, the strigil played a crucial role in the cleansing process. The earliest depiction of a strigil used for scraping of the *στλεγγίσματα* from the body of an athlete is dated to the end of the sixth century (Kotera-Geyer 1993, 6). Archaeological finds of strigils and literary references go, however, back to the beginning of the sixth century B.C., and it is likely that strigils were used as cleansing implements much earlier in the Peloponnese, Rhodes and Kypros.⁷⁸ At the beginning of the fifth century, the strigil was a widespread cleansing tool (Kotera-Geyer 1993, 6, Weber 1999). The majority of vase-paintings and the surviving sculptures show strigils in cleansing scenes of athletes in public, but they were also used at home and, probably from the early classical period, by women.⁷⁹ In the medical treatise of Hippocrates and his scholars (e.g. *Hp. Acut.* 65.3), the use of a strigil signified well being and healthiness, since ill people were recommended to use a soft sponge rather than the strigil. From the fifth century B.C., the strigil together with the *aryballos*

⁷⁶*Hair and sexual attractiveness*: Hawley 1998 49, add D L. 6.66.

⁷⁷*Bathtubs as sarcophagi*: cf. n. 72.

⁷⁸*Archaeological finds*: Kotera-Geyer 1993, 1, 76, 144; Raubitschek 1998, XXIV, 46, 462. *Literary references on στλεγγίς and ξύστρα*: Kotera-Geyer 1993, 10, 14, 145.

⁷⁹*Public*: Weber 1999. *At home*: e.g. *X. O c* 11.18. *Women in the classical period*: Kotera-Geyer 1993, 6. *Women in later periods*: Kanammerer-Grothaus 1984, 26.

were associated with the gymnasium to a degree that it was sufficient to depict both bathing implements, when men should be characterised as people visiting the gymnasium (e.g. pls. 14.4, 6). As it was considered a privilege to visit the gymnasia, the strigil signified in these cases social status and exclusivity. In Xenophon's understanding the symbolism of social privilege was rather related to olive oil than the strigil; he argued that everybody could buy perfumes, but that the scent of the olive oil used in the gymnasium distinguished those who had the privilege to have access to the gymnasium from those who did not.⁸⁰

CLASSICAL PERIOD

Some aspects of personal cleanliness did not change in the classical period. It was still considered a communal activity for both sexes (pls. 14.5-6; 16.5). In addition, most of the public and private bathing facilities of the classical period do not differ from those of earlier periods. Thus, rivers and the sea were still appreciated as public natural, swimming and bathing environments, though the extent to which they were frequented may have varied from *polis* to *polis*, season to season, and the occasion. While the river Eurotas appears to have been the primary cleansing facility for adult men in Sparta the whole year round, the courtesan Phryne seems to have bathed in the sea only for a religious event, the Eleusinia.⁸¹ Built public washing facilities still included those close to sporting grounds, although their appearance changed considerably. At Delphi, for example, the washing facilities consisted of the so-called Kerna-well located close to the stadium in the fifth or fourth century, but also of a *loutron* with ten bathtubs and a round basin located at the terrace below the gymnasium by c. 350 B.C.⁸² In Olympia, the open-air swimming pool of the fifth century B.C. was replaced by a covered hot water facility with individual bathing facilities (pls. 15.1, 3; Schleif 1944, 40-2). Although every bather had a bathtub of his own, bathing was still a communal experience, as the bathers have eye contact, as in the symposia. The trends towards hot-water bathing facilities with individual bathtubs in large palaestras was not restricted to the panhellenic sporting grounds, but part of large-scale changes all over Greece.⁸³

Public hot-water baths (βαλανεία) also occurred as new features in Greek *poleis*, already from the fifth century onwards.⁸⁴ By the fourth century B.C., they had

⁸⁰X. *Sym.* 2.4. *Gymnastic exercise as a privilege*: Arist. *Ath.* 2.10.

⁸¹*Sparta*: Flacelière 1977, 202. *Phryne*: Ath. 590-1

⁸²*Well*: Amandry 1996, 90. *Loutron*: Roux 1996, 108.

⁸³*Bathrooms*: Ginouvès 1962, 34; Glass 1968, 146. *Quality of water*: Flacelière 1977, 204.

⁸⁴*Hot water*: Ar. *Nu.* 1045-62; Isaios, cited in Isager & Skydsgaard 1995, 101. *Distribution*: Flacelière 1977, 205, add Sokolowski 1969, no. 14.37 (ap. *IG I³* 84; 418/7 B.C.).

become common features in urban life, just like the steam baths (pl. 15.1-2).⁸⁵ In the literary sources, public hot-water baths were not primarily associated with personal cleanliness, but with a social meeting point, where wine could be consumed and *kottabos* played.⁸⁶ In fact, Diogenes Laertios (6.47) claimed that the public baths were dirty (ῥυπαρὰ βαλανεῖα) and that whoever had bathed there, would have to go somewhere else to get clean (οἱ ἐνθάδε λουσάμενοι ποῦ λούνται). Yet, he and the Demos visited them on a daily basis.⁸⁷ Public baths did not have a good reputation, as they were said to have been the social meeting points of socially disreputable figures.⁸⁸ Thus, the absence of Phokion and the courtesan Phryne from public places were positively noted in literary sources, whereas Demosthenes criticised seamen for visiting public baths.⁸⁹ The group of people who were to be found in public baths were, in particular during winter-time, poor people who aimed at keeping warm and the male youth who were drunk even before the *agora* was open.⁹⁰

Washing with warm water was thought a luxury appropriate for old and ill people, but a danger in particular for the male youth, since it was held to make them soft.⁹¹ The discussion on the bad influence of hot water on the male youth may point to a crisis of the gymnasium.⁹² More specifically, it may hint to the fact that the *ephebes* preferred to meet in public baths rather than attending sportive exercise in the gymnasium. If this assumption is correct, the hot-water bathing facilities of *palaestras* may be interpreted as a measure to make the sporting grounds more attractive. By the end of the fourth century, however, hot water seem to have become socially accepted features in households (X. *Oec.* 5.9).

In terms of the washing facilities in private households, rooms set apart for washing activities became a quite common facility in private houses in classical cities. A bathroom was, however, not yet standard equipment in a house.⁹³ At Olynthos, for instance, 23 out of 90 *oikoi*, that is 25.5% of the excavated houses were equipped with a bathroom, and bathrooms occur only rarely in the private houses at Priene, of which

⁸⁵*Baths*: Flaceliere 1977, 205; Tsouklidou-Penna 1979 (fourth century public bath in Athens); Crouch 1993 113, 320 (third century Gela). *Steam baths*: Lewandowski 1960, 83.

⁸⁶*Meeting point*: Ar. *Nu.* 991. *Kottabos*: D.L. 6.46.

⁸⁷*Diogenes*: D.L. 6.40. *Demos*: Ar. *Eq.* 1061.

⁸⁸*Not good for decent youth*: Hermippos, cited in Lewandowski 1960, 82.

⁸⁹*Phokion*: Plu. *Phoc.* 4.2. *Phryne*: Hermipp. *fr.* 68 (Wehrli; ap. Ath. 590E-F); Ath. 590D E; Plu. *Hyp.* 849E. *Seaman*: Demosthenes, cited in Lewandowski 1960, 82.

⁹⁰*Poor people*: e.g. Ar. *Ach.* 17; *Pl.* 535. Cf. Scobie 1986, 403 (Roman). *Youth*: Pherecr. *fr.* 2 (Kock); cf. n. 94.

⁹¹*Old and ill people*: Plato, cited in Lewandowski 1960, 83. *Youth*. Ar. *Nu.* 1045-62.

⁹²*Sharp difference between public baths in the city and those at the gymnasia*: Poseidon. *fr.* 228 (FHG 3, 258); ap. Ath. 527E).

⁹³Adkins & Adkins 1998, 216. *Contra*: Dayagi-Mendel 1989, 19; Hoepfner & Schwandner 1994, 320.

many, if not most, go back to the third century B.C.⁹⁴ The rural *polis* Halieis, where nearly all of the excavated fourth century *oikoi* had baths seems to have been an exception.⁹⁵ In the households with an included bathing facility, bath and kitchen used to form a unit, probably for practical reasons such as the supply of warm water.⁹⁶ In the countryside, the percentage of bathroom is much lower than in cities: in the thirty farmsteads of the classical *deme* Atene, only one bathtub was found and in the Attic *deme* of Halai Aixonides at Kalabokas near Ano Voula at the Nea Leophoros Athinon/Vouliagmenis, there were found remains of one bathroom in the entire village (Lohmann 1992, 35, figs. 10-1). Single farmsteads like the so-called Dema House and house A at Draphni, both located within Attica, could call an integrated bathroom their own.⁹⁷ Whether or not these figures fit in general into the differences in standards of cleanliness between countryside and city mentioned in a passage in the *Nubes* of Aristophanes, where dirt and personal untidiness, and nature was associated with rural life is difficult to say.⁹⁸ On the one hand, Aristophanes' statement seems to be ideologically motivated and follow his general attitude that life in the country side is nice, while life in the city is dreadful.⁹⁹ On the other hand, the absence of a bathroom is not synonymous with negligence of bodily cleanliness, since washing can also take place with movable bathing implements or wash basins.¹⁰⁰

So, which group of people should ideally make use of which washing facility? The dead were cleansed at home, before they were brought to their burial places. Religiously motivated washing activities of cult members took place in the sea and at *perirrhanteria*, while cult statues seem to have been exclusively washed in the natural environment.¹⁰¹ Virtuous women probably should wash themselves in a private bath and not in the public hot-water baths (Ar. *Pax* 842; cf. Ginouvès 1962, 151-2). Female slaves, prostitutes and socially less privileged women were generally held to have visited the baths (cf. pl. 16.5).¹⁰² Men who had the privilege to participate in athletic competitions at gymnasia, used to remove the sweat and dirt of their bodies with their strigils and use the facilities provided on the spot. If physical exercise took

⁹⁴*Olythos*: Robinson & Graham 1938, 199, 204; Robinson 1940, 258. *Contra*: Dayagi-Mendel 1989, 19. *Priene*: Hoepfner & Schwandner 1994, 202. There is no evidence for the so-called Dema-house (contra McKay 1988, 1363), but for some of the Hellenistic houses at Olbia (Vinogradov & Kryzickij 1995, 37). *Regional variability*: Crouch 1993, 283-304, esp. 299.

⁹⁵Ault 1994a, 103-4, 123, 138, 188, 232-4.

⁹⁶This is not only true for Olythos and Halieis, but also for the domestic units close to dining structure from the sanctuary of Demeter and Kore, Corinth (Book dis 1990; 1993).

⁹⁷*Dema House*: Jones 1975, 113. *Draphni*: Jones 1975, 102, fig. 13.

⁹⁸Ar. *Nu.* 43-52, cf. app. G.1. Cf. Thiery 1993, 510, 511, 525-6.

⁹⁹*Polis-countryside dichotomy*: Thiery 1993.

¹⁰⁰Stored bathing implements: e.g. X. *Oec.* 10.153-7. *Public wash-basin*: cat. 165 (?).

¹⁰¹*Humans in the sea*. e.g. Ath. 590-1. *Humans at perirrhanteria*: Pimpl 1997, esp. 5, 7-8. *Cult-statues*: cf. app. C with n. 3.

¹⁰²e.g. Flacelière 1977, 206; Kammerer-Grothaus 1984, 26

Oec. 11.18). Respectable citizens were not supposed to visit the public baths, but wash themselves at home.

In terms of the occasions for which personal cleanliness was significant, there is not much difference from the Homeric and the archaic period, since personal cleanliness was required for all important social events and occasions, including birth, wedding, death and participation in a feast or a symposion.¹⁰³ In fact there is only a new cleansing requirement for mourners, which may point to changes (Parker 1996, 36). Parker (1996, 18-31) is probably right in interpreting most of these washing practices as practices of separation and 'division', drawing attention to special events and transitorial phases. Socrates' intention to attend symposia only after having taken a bath (*λελουμένος*) is far more concrete: he wanted to be a match for the beautiful and good (*ταῦτα δὴ ἐκαλλωπισάμην, ἵνα καλὸς παρὰ καλὸν ἴω*).

Another traditional cleansing motif deployed is that of female bodily cleanliness.¹⁰⁴ More specifically, classical depiction of bathing scenes of goddesses draw on the well-established association of bathing with arousing sexual desire in men and sexual intercourse: a red figure *pelike* by the Marsyas Painter, depicts Peleus who caught sight of Thetis bathing herself and washing her hair (pl. 17.1)¹⁰⁵; that he will succeed in seducing/raping her indicates the Eros crowning Peleus. Further classical and Hellenistic examples include various representations of Aphrodite preparing to take a bath, with which men fell in love and had intercourse (pls. 17.2-4). Post classical stories of men crying over the statue of Aphrodite of Knidos, having sex with it and staining it with semen, on the one hand, and the selling of pornographic images of this statue, on the other, testify that it had a lasting impact on men and became the object of men's admiration and desire testify.¹⁰⁶

Although bathing scenes were linked to seduction and sexual intercourse in the Homeric, archaic and classical period, the ways in which the bathing motif of goddesses was used changed considerably over time. While Homeric goddesses consciously employed bathing as a strategy to enhance their beauty and sexual attractiveness, classical goddesses tended to become unwillingly the object of desire while bathing. The unintentionality of their bathing actions is most explicitly expressed in the type Aphrodite of Knidos, as she covered her shame against the eye

¹⁰³*Birth*: Ginouvès 1962, 235-8 Parker 1996, 48-73. *Wedding*: Ginouvès 1962, 265-83; Oakley Sinos 1993, 442-6. *Death*: e.g. Ath. 410A; Nilsson 1968, 180, 187; Parker 1996, 32-48. *Feast*: Ar. Lys. 1059-65. *Symposion*. e.g. Pl. Smp. 174A. Cf. Ath. 270D.

¹⁰⁴*Human realm*: e.g. Ar. Av. 140. Cf. Thiery 1993, 509.

¹⁰⁵*Hair and sexual attractivity*: e.g. Hom. Il. 14.175-7 (Hera combed and plaited hair; 19.126 Ate has shining hair); cf. n. 82.

¹⁰⁶*Erotic effects*: Davidson 1998, sub-title to fig. of Aphrodite of Knidos; Zanker 1998, 74.

of the male intruder (cf. Zanker 1998, 73-4). The changes, from the Homeric to the classical period, may, thus, be characterised as changes in the emphasis from result (cleaned and beautified goddess) to process (cleaning goddess) and from active (seducing) to passive (raped). It is necessary to stress that these changes were restricted to the iconography of divine bathing scenes. That outside of this context bathing was effectively employed by women to enhance desire in men is documented for the courtesan Phryne (Ath. 509-10).

Apart from the entire body bath, the cleanliness of body parts, namely hands and feet, was required in the same situations as in the Homeric and archaic period. Clean hands were essential before eating and for the interaction with the sacred.¹⁰⁷ Hands were also washed after meals.¹⁰⁸ The quality of religious cleanliness was both physical and moral (e.g. Pimpl 1997, 1). Other traditional uses of cleansing motifs include washing and anointing feet as part of the welcome-codex and the cleansing of hands as part of the preparations for meals.¹⁰⁹

As in other periods, too much and too little bodily cleanliness was criticised. In Menander's first play *Anger* (287, 303 (Koerte)), he criticised Ktesippos, the son of the great general Chabrias, and more generally all men 'who eat up the land they have inherited' by discussing their expensive life-style. Important for this context are the critical references to the obsessive attention of the outward appearance and cleansing habits. Under attack came the habits of washing oneself five times a day and using perfume. These habits resemble those criticised for women in the moralising poem by Semonides. In the meanwhile, however, the unacceptable frequency of daily baths had increased to five instead of three baths a day. It is noteworthy that bathing habits were no longer a subject of criticism in comparable critiques on female modes of behaviour. Xenophon's *Isomachos* (*Oec.* 10.11-3), for example, only discourages his wife from using cosmetics, fancy clothes and platform boots, as a virtuous woman such as his own should retain a simple, natural beauty. The other extreme, of the scale, that is the negligence of personal cleanliness, was either criticised or mocked at in various passages of the Aristophanic comedies. Some accusations, such as that of Kleomenes not having washed himself for six years, seem to have been an Aristophanian exaggeration.¹¹⁰ Yet, they give evidence that bodily cleanliness was a social matter of crucial importance. Both cases showed that the actual washing frequency varied considerably from person to person. What was considered the norm

¹⁰⁷ *Eating*: Ginouvès 1962, 152. *Sacred*: D. 20.60, cf. app. G.1; Antipho 11 82, A. *Eu.* 235, E. *Hipp.* 1448-9; Hdt. 1.35.1; Thphr. *Char.* 16 1.9 (superstitiousness).

¹⁰⁸ Amyx 1958, 221-4; Ginouvès 1962, 77-99.

¹⁰⁹ *Feet*: Ar. V. 608. *Hands*: Ar. Av. 462

¹¹ Ar. *Lys.* 279-80. Cf. Ar. *Pl.* 296 8; A. 1282, 1554; Nu. 835.

is difficult to say. Children seem to have been washed every morning.¹¹¹ Daily washing routines may also have been the norm for adults of the middle to upper class, since even horses were washed on a daily basis (καθ' ἡμέραν; X. *Eq.* 5.2).

Judging from the classical tragedies, a clean outward appearance was still a visual codification of social prestige and linked, among other factors, to cleansing processes involving the use of water.¹¹² Taking into account the other genres of classical literature, the picture drawn in tragedies does not seem to reflect practices and ideals typical for the classical period, but rather of past times. More specifically, references in comedies and philosophical treatises rather hint to the facts that cleanliness was no longer a means of social differentiation between the elite and the 'commoners', as it was in the Homeric period, and that it had become a matter of course for all or nearly all social strata. A passage in Plato's *Republic* (495E), in which the first thing a slave did after his liberation was taking a bath and buying new clothes, may perhaps point to the exclusion of slaves from the general trend towards more refined cleansing processes. This process may have gone hand in hand with a simplification and economisation of washing activities since the fifth century B.C., as observed by Ginouvès.¹¹³

The degree to which bathing had been taken for granted as an element of everyday life became evident in the casual way in which a visit to the public baths or bathing was mentioned in literary sources, on the one hand, and in the critical comments on unwashed people in comedies and Theophrastos' *Characters*, on the other.¹¹⁴ An increased awareness of cleanliness among the population can be also deduced from a passage in *Plutos* where Kario emphasised that Asklepios wiped the eyelids of a patient with a 'perfectly clean rag' and from the Spartan punishment for cowards, which consisted in stigmatising them with physical shame, an unkempt appearance, marked clothing, and half-shaved beards.¹¹⁵ That the 'democratisation' of cleansing practices also included clean clothes can be deduced from the endeavours of ordinary people to keep their clothes clean (Thphr. *Char.* 8.6; 10.14; 19.4). It is also tempting to interpret classical references to mouth hygiene in terms of a greater refinements in body-care (Ar. *Ec.* 640; *Lys.* 798; *Pax* 526; Thphr. 19.3, cf. app. G.1; Pyth.Sim 36 (cited in Parker 1996, 295 n. 70). However, the concern with having a sweet breath in the Homeric epics probably points to the fact that already some Homeric people had

¹¹¹Ar. *Lys.* 19 *M re general on child care*: Ar. *Lys.* 881, 1064.

¹¹²Negative example: e.g. A. *Eu.* 45-54. Cf. Heath 1999, 35. *Positive example*: e.g. E. *Or.* 225.

¹¹³Ginouvès 1962, 102 (with different interpretation).

¹¹⁴Casual way: e.g. Ar. *Eq.* 52, 1061; *Pax* 1138-9; Eub. *fr.* 126 (Kassel & Austin); Thphr. *Char.* 5.14; D.L. 6.40. *Criticism*: Ar. *Pl.* 1062; Arist. *Rh.* 1413A; Thphr. *Char.* 19.5.

¹¹⁵Ar. *Pl.* 729 *Plu Ages.* 30.2-3.

some kind of mouth 'hygiene' (H m. *Od.* 4. 406; *h.Cer.* 238 (h.2)). Thus, mouth 'hygiene' seems to have been rather a constant element of cleanliness over time. Changes may have occurred concerning the kind of substances used, but these are impossible to pin down owing to the scarcity of literary sources on this point.

APPENDIX E. SPATIAL CLEANLINESS

This appendix examines the measures undertaken by ancient Greeks to keep private and public places tidy. The strategies used for keeping places clean included disposal regulations and cleaning practices. Since dirt (and cleanliness) do not only occur in the physical-concrete mode, but also in the immaterial mode (II.2.1), I will also take into account measures undertaken to keep out unwanted, dirty or polluted people. This analysis of spatial cleanliness discusses the literary, epigraphic and archaeological evidence, exploring not only changes over time, but also differences between the contexts of sanctuaries, settlements, *agorai* and cemeteries. With respect to the latter point, I shall also discuss the extent to which concepts of the sacred had an influence on the standards of cleanliness required for these places. Changes across time will be assessed by considering the following categories: (1) the frequency of cleaning routines of particular places, (2) the cleansing method, (3) the body of persons who took over controlling and supervisory functions (4) the involvement of the *polis* in regulating cleanliness. Finally, I shall briefly address the issue of the interrelation of different concepts of cleanliness (material:immaterial; matter out of place; dirt as social marker) with different contexts under consideration.

SETTLEMENTS/HOUSEHOLDS/WORKSHOPS/SCHOOLS

Homeric society was a pre-*polis* society, in which the οἶκος mattered and the πόλις was mentioned in unpleasant situations only. Consequently, references to spatial cleanliness were restricted to that of households, workshops and stables. To evaluate the social significance of clean aristocratic *oikoi* and workshops I will briefly discuss three passages, which describe in detail spatial cleansing activities. Two of the scenes describe in detail cleansing practices carried out in the *oikos* of Odysseus¹ The first cleansing was carried out the morning of the day when both the feast of Apollo and the wedding of Penelope were supposed to take place.² Eurykleia, the first maid, divided the fifty women servants into three groups. The first group had to sweep the hall (κορέειν), sprinkle water on the ground (ῥαίνειν) and throw coverlets of purple on the chairs. The second group wiped down the tables with sponges (ἀμφιμάεισθαι) and cleaned *kraters* and *kylikes* (καθαίρειν). The last twenty of them fetched fresh water.

The second cleansing was carried out after the killing of the suitors and unfaithful female servants and aimed at setting the *oikos* in order (κατακοσμέσθαι; διακοσμέσθαι). It consisted of four phases: (1) the removal of the dead bodies from

¹First scene: Hom. *Od.* 20.147-62. Second scene: Hom. *Od.* 22.437-94; 23.49-52.

²Feast for Apollo: Hom. *Od.* 20.156. Wedding: Hom. *Od.* 22.437.

the inner part of the house to the portico (αἶθροισα), which was located close to the exit of the estate (fig. 11). (They could not be thrown outside of the house, as was done with the dung from the stables, since the deed was to be kept a secret for as long as possible (cf. III.3.2)); (2) the washing of chairs and tables (καθαίρειν); (3) the removal of the earthen floor soaked with blood; and (4) the purification of the *megaron* with sulphur and fire.



Fig. 11: Reconstruction of the Homeric *oikos*

Apart from the hall as the centre of social life, open-air (?) metal workshops were the focus of cleaning activities, when divine visitors were expected (Hom. *Il.* 18.412-3). In contrast to the extensive cleaning programmes of Odysseus' house, the cleaning of the workshop consisted only of sweeping the floor and bringing the tools into order. It was also more restricted in terms of people involved in the cleaning and tidying up.

It is also documented that the stables and pens were cleaned out from time to time, since Odysseus passed the dung-heaps (Hom. *Od.* 17.223). Richter (1968, H51) is probably right to conclude from the phrases of cattle hurrying to the pasture from the dung/stable (ἀπὸ κόπρου) and cattle hurrying home to the dung/stable (ἐς κόπρου) that pens and stables were not cleaned out on a daily basis (Hom. *Il.* 18.575; *Od.* 10.411).

It is not clear whether or not the cleaning activities under discussion were representative. More specifically, it is unclear whether the extensive cleansing programme of the first cleansing scene was carried out every day or whether it was restricted to specific occasions. Wickert-Micknat (1982, R59) classified the labour intensive cleansing programme as an everyday-activity, stressing the routine with which the cleansing is carried out. I think that

Wickert-Micknat is right in inferring that this kind of cleansing programme was not carried out for the first time. Any further inference from this passage regarding the frequency of cleaning would not be sound. In fact, it is equally possible to argue that this set of cleansing activities was restricted to feasts only, which occurred more than once a year (Hom. *Od.* 20.182).

In this context, four casual references to the cleanliness of aristocratic households are relevant. Two of them mention *en passant* that tables were sponged before a meal and that hides of chairs were changed (Hom. *Od.* 1.109-12; 17.32). These passages imply that the washing of tables was a part of the preparation for the meal as common as mixing wine and cutting meat. If so, the extensive cleaning programme of the entire *megaron* was rather a typical preparation for a feast than an ordinary day. That cleaning was not mentioned on other occasions such as before sacrifices may be explained, as in other cases, in terms of poetic freedom.³ Another passage, which shows that the Homeric aristocracy had certain standards of cleanliness, deals with spider webs as symbols of a neglected household (Hom. *Od.* 16.35, cf. Laser 1968, P10.). I think that cleansing activities were undertaken whenever physical dirt, including blood and spider webs, covered the hall of socially important people (Hom. *Od.* 16.35, cf. Laser 1968, P10). That standards of spatial cleanliness and cleansing frequency varied between the representative parts of the *oikos* and the kitchen is implied by a statement made by Odysseus (Hom. *Od.* 11.185).

To sum up: basic washing activities in the representative parts of an aristocratic household took place before every communal dinner and more complex cleansing activities were carried out before special feasts. While cob webs and blood were not tolerated in the inner-most parts of the aristocratic *oikoi*, it is not clear whether food debris on the floor was swept out after each meal. Metal-workshops seem to have been swept out from time to time. This practice is confirmed by archaeological evidence from the late geometric to the classical period (Lang 1996, 134; cat. 8).

From the archaic period, little literary evidence concerning spatial cleanliness has survived. One of the few exceptions is Semonides poem on different kinds of women, which I have already analysed with respect to personal cleanliness.⁴ He primarily defined spatial cleanliness in terms of the absence of *kopros*. He also classified houses as unclean

³Hom. *Od.* 3.418-44 (*kos* of Nestor); 4.621-4 (*oikos* of Menelaos)

⁴Semon. *fr.* 7.6, 60 (West). Cf. app. G.1. - Lloyd-Jones (1975, 66), translated ἐν κοπρίῃσιν ἤμενη in line 6 as sitting *near* a dung-heap and explained the purpose of doing so in guzzling food that had been thrown away or as an expression of indifference to the surrounding. I think, however, that Semonides meant indeed sitting *in* or rather dwelling in a dung-heap. In my point of view, it makes more sense to image a sow-woman in a dunghill, that is to say a house whose standards of cleanliness had reached that of a dung-hill due to the negligence of spatial cleanliness of the housewife.

and untidy when they were smeared with mud (βόρβορος), lay in disorder (ἄκοσμος) and when items were rolling about the floor. Another clue to spatial cleanliness Xenophanes provided in one of his elegies, giving an account of the preparations necessary for a symposium celebrating the gods.⁵ He stated that the home is considered clean and ready for being used to celebrate the gods when the floor is swept and the cups are clean. The degree of spatial cleanliness required for a symposium seems to have been roughly the same as for a feast in honour of Apollo in Homeric times. The major difference does not affect spatial cleanliness, it seems, but rather the quality of personal cleanliness, which Xenophanes understood both in physical and mental terms (cf. Lissarrague 1990a, 26-7). That the cleanliness of pens and stables was also a concern in the archaic period can be deduced from Pindar's (*O.* 10.28-30) reference to Herakles' deed of cleansing the stable of Augias.

For the Classical period, evidence is somewhat more plentiful. Here, we find a development both in ways of cleansing in the public and private realm, and in the involvement of the *polis*, which takes over a pivotal (albeit mostly supervisory) role in ensuring the cleanliness of the city. Of particular importance is the emergence of *koprologoi*, whose role will be discussed in some detail later on in this section. To begin with, I will consider the evidence for cleansing practices and its development.

Sources indicate that both private and public buildings such as schools were kept clean by sweeping them and washing the furniture.⁶ Sweeping in the Classical period was so common a feature that Aristophanes (*Pax* 59) could employ it in the metaphorical sense of 'keeping Greece tidy'. As in the Homeric period, special attention was given to valuables, such as carpets.⁷

Changing cleaning methods and a more refined attitude towards dirt could be postulated for the beginning of the classical period, if it could be shown, firstly, that the early Classical *metope* on the Temple of Zeus at Olympia depicted Herakles cleaning the stables of Augias by diverting one or more of the nearby rivers and, secondly, that this innovative cleansing technique reflected changes from shovelling to cleansing with water (fig. 12).⁸

⁵Xenoph. *fr.* B1 (West; ap. Ath. 462C). Cf. app. G 1. *Religious implications of a symposium: Ath* 192B.

⁶*Oikos*: Eup. (ap. Poll. 10.29); Hermipp *fr.* 2 (Kock, ap. Ath. 487E-F), cf. app. G.1. *School*: D 18 258.

⁷D.L. 3.41. Vögler (1997, 48) imagined that Diogenes had chosen a rainy day to defile as efficiently as possible Plato's carpets. I think that the dust from the streets was enough for Diogenes to make his point, since there were probably not too many rainy days in ancient Athens.

⁸X. *Eq.* 5.9 dealing with the daily cleansing out of the stable of horses cannot be compared to earlier sources dealing with the cleanliness of stables of pasture animals, as horses were prestige animals and received special attention.

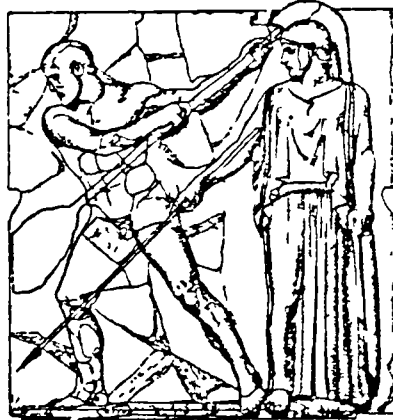


Fig. 12: Herakles cleaning the stables of Augias

I think that it is difficult to argue with Ashmole and Yalouris (1967, 29) that the *metope* depicts Herakles opening a water-gate because of the state of preservation of the *metope*. In fact, the way in which Herakles is holding the stick points, in my opinion, rather to somebody wielding an implement to shovel out the dung by means of physical labour. In addition, the version of the Herakles myth in which he avoids the intended insult of his employer by using the power of running water, which puts him in the position to avoid both the manual work of shovelling and contact with the dirty substance, is not testified to in the classical period.⁹ Moreover, Lysippos' depiction of Herakles sitting on a manure-basket seems to stress the aspect of Herakles' physical strength rather than his cunning and intelligence and, thus, gives evidence that there existed more than one interpretation of the myth in earlier times (cf. Vollkommer 1988, 8). For the reasons stated above, I regard it more plausible to picture Herakles holding a shovel on the *metope* at Olympia, emphasising his super-human strength. The representation thus cannot be taken as evidence for new cleansing methods.

In contrast to the stables, structural alterations of the *andron* (room where the male symposia took place) can be interpreted more convincingly in terms of changes in the perception of dirt and cleaning methods. Best documented are the changes in the equipment of house 2 at Eretria around 300 B.C., which included the instalment of a new, water-proof mosaic and a drainage at the western part of the threshold leading to the anteroom (cat 182). The easy-to-clean-surface connected to a channel, which were by no means extraordinary features of Hellenistic houses (Ducrey, cited in Waldner 1993, 74), seem to hint at a new interest in cleaning away easily and efficiently the mess after feasts,

⁹Overview over *surces*: Boardman 1990, no. 1.705 ap 2.302); Woodford 1990, no. 2.300, 2 302 (ap. no. 1.705).

consisting of food wastes, wine and bodily wastes.¹⁰ These structural changes may be the best examples to pin down changes in the tolerance of dirt and in cleansing methods. While it was considered sufficient to sprinkle and sweep the earthen floor or to dig it away when seriously defiled, dirt was more efficiently removed with water from a washable surface. It is noteworthy that these changes may have been restricted to urban life, since Aristophanes mentioned different standards of personal cleanliness as the most distinguishing features in urban and rural life.¹¹ That the improved cleansing technique of *andra* was nonetheless an expression of wider, inter-regional changes seems likely in the light of a new generation of cisterns at the East Hill of Morgantina, Sicily, whose bottoms sloped to a bowl-like depression so that silt and debris could be cleaned out easily (Crouch 1993, 25, 26, fig. 32). These panhellenic changes towards a greater sensibility towards dirt were not restricted to settlements, it seems, but also included the early Hellenistic sanctuaries of Demeter at Priene, Agrigent and Herakleia, where *bothroi* containing stinking rotten organic materials were closed with a lids.¹²

References to religiously motivated cleansing actions are rare for the classical period. One of the rare exceptions is Theophrastos' (*Char.* 16.7) detailed description of the superstitious character, in which he stated that these people purified (καθαίρειν) their *oikoi* 'on the plea that Hekate has been drawn thither'. As it is the nature of superstitious people to be overcautious, the purification of private houses cannot be seen as a strategy commonly employed.

Clean *poleis* became a public interest in Classical Athens and Thebes and probably also in other, less well documented *poleis*. In particular in Athens, the *polis* authorities controlled the disposal of discard in the following ways: (1) ratification of legal prohibitions for the disposal of dirt, (2) the appeal instance for quarrels related to illegal waste disposal, and (3) the supervision of people whose primary task consisted in redepositing dirty waste from inside the city to outside of it.

(1) An example of disposal regulations is the so-called Piraios inscription of 320/19 B.C.¹³ It can be restored as a prohibition for dropping κόπρος, earth (χοῦς) and any other substance in the Hippodamian *agora* and the streets of Piraios. The first part of the legislation seems to have aimed at preventing a whole range of actions, since the verb καταβάλλειν may range from 'throwing down', 'casting away' to 'dropping'.¹⁴ More

¹⁰Food waste: e.g. οἶκος ἀσάρωτος, the unswept house (cat. 47; II.1.7). *Kottabos*: III.1.3. *Spilled bodily wastes*: e.g. D. 54.4.

¹¹Ar. *Nu.* 43-52, app. G.1. *Critical notes*: app. D with ns. 98-9.

¹²Kron 1992, 617 with n. 28 (with bibliography).

¹³JG II² 380.36-40. Cf. app. G.1; Protz & Kolbe 1902, 62; Vatin 1976, 557; Garland 1987, 213.

¹⁴Meaning of καταβάλλειν: Oikonomides 1988, 56.

specifically, it may have aimed at discouraging households to throw their *kopros* on the streets, *koprologoi* to dump the *kopros* they collected from households within the boundaries of the city-territory and humans from defecating in the streets. For the understanding of the second part of the legislative prohibition the Hellenistic *astynomic* law of Pergamon is of interest, as it throws light on the nature of $\chi\omicron\upsilon\tilde{\varsigma}$. In Pergamon, the prohibition regulating the disposal of earth and mortar is discussed in the context of prohibitions of producing bricks and working stone in the streets (and leaving the chips as primary waste disposal).¹⁵ Thus, it seems reasonable to understand the second part of the Piraios inscription as a prohibition to leave construction debris on the streets.

(2) When people did not act in accordance with the *astynomic* law of Pergamon, it was recommended to call the *astynomoi*, who would decide what to do. Another way in which the *polis* ensured that the legislative disposal regulations issued by the *polis* authorities was followed consisted in punishing illegal disposal practices. Such a case is documented by Demosthenes (55.22, cf. II.1.4), who reports of two parties discussing whether the disposal of earth onto the street was an illegal action (cf. II.1.1).

The city-states of Thebes and Athens employed magistrates to guarantee a clean *polis*. In fourth century Thebes, the duties of the $\tau\epsilon\lambda\mu\acute{\alpha}\rho\chi\omicron\varsigma$ included the 'supervision of the alleys for the removal of *kopros* and the draining off of water in the streets' (Plu. *Moralia* 811B, cf. app. F.1). His range of tasks is not comparable to those of the Athenian *koprologoi*, as Fowler (1960, 223 n. a) claimed, but the *astynomoi*, since Plutarch stressed the supervisory functions of the *telmarchy*. The Theban *telmarch* did not seem to have controlled the work of street-cleaners, as Fowler argued (1960, 223 n. a), but rather the cleansing of specific parts of the street-system, the $\sigma\tau\epsilon\nu\omega\pi\omicron\acute{\iota}$ (small streets, alleys), ideal places for the accumulation of excrement. Whether the removal of *kopros* from alleys was the responsibility of the households adjacent to it, as in Hellenistic Pergamon and later in Rome, or whether it was carried out by specialised agencies, as in classical Athens, is difficult to say.¹⁶ I think it is reasonable to argue that the adequate removal of waste water and *kopros* were the responsibility of private households, which called and paid for people specialised in the removal of *kopros*.

The terms $\tau\omega\nu\ \kappa\omicron\pi\rho\acute{\omicron}\nu\omega\nu\ \acute{\epsilon}\pi\iota\sigma\tau\alpha\tau\alpha\acute{\iota}$ (supervisors over dung-hills or cesspools) and $\alpha\sigma\tau\upsilon\nu\acute{\omicron}\mu\omicron\iota$ (city-controller) probably were just two different terms for the job of the *telmarch* at Athens.¹⁷ The tasks of the Athenian city-controllers responsible for

¹⁵OGIS no. 483.38-40, 60-5. Cf. app. G.1; Protz & Kolbe 1922, 65; Owens 1983, 44 with n.2.

¹⁶Athens: Arist. Ath. 50-51.1. Pergamon: IG II² 380.36-40. Cf. app. G.1; Protz & Kolbe 1902, 62. Rome: Hughes 1996, 132.

¹⁷D. 25.49, cf. app. G.1; Pl. Lg. 6.763C-E; Arist. Ath. 50-1, cf. app. G.1. *Astyn moi same as epistatai kopronon*: Ault 1994a, 221.

Athens-city and Piraios were summarised by Plato as follows: ἐπιμέλεια τῶν οἰκοδομιῶν ἵνα κατὰ νόμους γίνωνται πᾶσαι. A more detailed account of their work was given by Aristotle in his *Constitutions of the Athenians*; he stated that their main functions consisted in (1) keeping order and preventing quarrels over prostitutes, which appears to have been a commonplace of low-life escapades (cf Davidson 1997, 82); (2) guarding public property and interests against private encroachments and interests in the cases of overhead conduits (δρύφακτοι) projecting out from the house and of windows opening outward on the road;¹⁸ (3) preventing any *koprol gos* from depositing the collected *kopros* within ten stades, that is a mile and a quarter, of the city-wall; (4) removing the bodies of persons who died on the roads with the support of public slaves.

The documentary sources offer only a limited amount of direct evidence about the identity of *koprologoi* and their source of income.¹⁹ Thus their identity has controversially been discussed. Prott and Kolbe (1902, esp. 60-1), for example, argued that *koprologoi* were public slaves and that the term *koprologoi* was used synonymously with ὄδοποιοί. The *koprologoi*, they concluded, were public slaves carrying out all kind of works related to repair and cleanliness of the streets according to the instructions issued by the *astynomoi*. There are a number of difficulties with this interpretation. First, this view has not taken into account that the *koprologoi* operated independently from the *astynomoi* and were not called public slaves as were those removing the corpses by Aristotle. Second, I doubt that the duties of the *koprologoi* and the *odopoioi* were the same, as is suggested by a *scholion*, since Aristotle distinguished sharply between their duties.²⁰

An alternative point of view has been advocated by a number of scholars. *Koprologoi*, they suggested, were no public slaves, but private entrepreneurs or people working for a private agency. They were supervised by the state, but operated independently from public institutions.²¹ Whereas the term 'private entrepreneur' seems to imply that free men worked as *koprologoi*, the term agency would allow slaves and free men to work for an entrepreneur.

If *koprologoi* were private entrepreneurs or worked for a private agency, they must have earned money with this work. They may have been either paid by the person who called for them or made some money by selling the *kopros* as manure (cf. III 1.4)²² The latter

¹⁸*Meanings of δρύφακτοι*: Boegehold & Crosby 1995, 195.

¹⁹Arist. *Ath.* 50-51; perhaps Ar. *fr.* 662 (Edmonds . 'Just take a basket and go dung gathering'.

²⁰Scholion on Aeschin. 3.24. Cf. Prott & Kolbe 1902, 61.

²¹*Private entrepreneurs*: e.g. Owens 1983, 48-50; Ault 1993; Alcock *et al* 19 4 149; Ault 1994a, 221. *Private agency*: e.g. Durm 1910, 515.

²²*Paid work*: Ar. *Pax* 9-16.

was most likely not their main source of income, since *koprologoi* obviously did not show a great interest in redepositing *kopros* outside the city-walls, in the fields, where it could be sold best to the farmers. The assumption that *koprologoi* made a profit from their work leads to the following set of questions: whom had the *koprologoi* been working for? Which kind of cleaning activities did they carry out? In how far were private households required to keep clean the area adjacent to their property?

The combination of the following four facts suggest that *koprologoi* operated primarily as cesspit and sewage cleaners and not as street-cleaners and that the clients of *koprologoi* were private households, but perhaps also the *polis*:²³ (1) The title 'supervisors over koprones' points to privies and dung collection facilities as their primary concern. (2) It seems to have been a common practice for households to call for them (Ar. *Pax* 9-16). (3) Cleanliness was restricted to specific areas. (4) The removal of sewage was a private matter in Classical Athens, since the lateral drains leading from the households to the main drain of the early fourth century B.C. were built and financed by private households (Young 1951).

Carroll-Spillecke (1989, 44) suggested that *koprologoi* also collected animal dung from private dung heaps, probably because animals were not only held in the countryside, but also in cities. I think the crucial point is whether the *oikoi* with domesticated animals also had fields to use this *kopros* as manure. Those who had no farms and *kepoi* may indeed have called the *koprologoi* to removed the nuisance from time to time.

It is unclear whose responsibility it was to keep the streets clean of human excrement, dung from working animals and animal carcasses, which Aristotle did not mention.²⁴ It was probably not among the duties of public slaves and public officers to keep the streets of Athens tidy, as Aristotle only stated that the *polis* of Athens felt responsible for dead human corpses found on the streets of Athens. It is possible that it was regarded the duty of private households to keep Athens clean, as it was later in Hellenistic Pergamon (*OGIS* no. 483, app. F.1). It is, however, also possible that the removal was left to scavengers like dogs and pigs, because nobody felt responsible for places within the settlement used by all.

The references to the provisions made by *polis* authorities to keep *poleis* such as Athens tidy merely mirror the efforts being made, they do not allow to draw a picture of the cleanliness of urban settlements. Reading Aristophanes, who addressed issues of dirt, the

²³*Cesspit cleaners*: Thompson 1959, 101; Owens 1983, 48; Wilkinson 1982, 324-5; Hodkinson 1988, 49. Cf. Dillon 1997, 126 n. 127. *Street maintenance*: Ownes 1991, 169.

²⁴*Animals on streets*: e.g. Plu. *De geio Socratis* 58 E (Socrates meets pigs in the streets); Tod 1948 nos. 107, 198 (oxen as transport animals).

private and public cleansing programme of Athens did not operate efficiently. Athens was for him a muddy, dirty and nauseously smelling place and, in particular during the Peloponnesian War, a place covered all along the ramparts and the walls with unpleasant substances such as sweepings (φορυστός, κόρημα).²⁵ Aristophanes' account is biased by his binary world view in which the opposition good:bad is linked to countryside:city and peace:war. It is, therefore, likely that he exaggerated somewhat in order to make reality fit into his world view, but I do not think that his perception of Athens as an unclean place was altogether a creation of his. I rather understand it as an indication for an increased sensibility towards dirt in the personal realm, which has not been reached in the public realm and, thus, caused unease.

AGORAI

There are a number of references to cleanliness in *agorai*, in particular for the Athenian *agorai*.²⁶ One reference to cleanliness can be found in Aristotle's *Athenian Constitution* (51.1). Having discussed the duties of Restorers of Temples and of city controllers, he addressed the duties of the *agoranomoi* (ἀγορανόμοι). One of their tasks consisted in controlling the quality and purity of products καθαρά καὶ ἀκίβδηλα) sold at the markets of Athens-city and Piraios. Plato (*Lg.* 764B) added that they supervised temples and fountains in the market to see that no one did any damage (ὅπως μηδὲν ἀδικῆ μηδεῖς). These passages show that the Athenian *boule* attributed importance to the Younger *agora* as a trading place and as a place crucial for the supply of Athens with drinking water.

Interestingly, the prevention of the defilement of the Younger *agora* by *koprologoi* was not mentioned as one of the functions of *agoranomoi*. This does not mean that *kopros*-free *agorai* were not on the agenda of the political authorities, as the so-called Piraios inscription of 320/319 B.C. shows (*IG* II² 380, cf. app. F 1). Since this inscription regulated waste disposal activities for the streets *and* the *agora* of Piraios, it is reasonable to argue that this inscription treated the *agora* under discussion not as a special places with economic, legal, or religious importance, but as a public place like the streets

The erection of *perirrhanteria* (basins for lustral water) in *agorai* is the third link to cleanliness. As their distribution is best documented for the Younger *agora* of Athens,

²⁵Ar. *Ach.* (φορυστός); *V.* 248 (πηλός), 257 (πηλός), 259 (βόρβορος; *Th.* 386 (προπηλακίζειν), *Lys.* 647-8 (play with *Anagyris foetida*); possibly *fr.* 490 (Kassel & Austin, cf. app. G 1; κόρημα). *Omnipresent odour of excrement*: e.g. Ar. *Pax* 16, 21, 99-101, 154, 164-72. Cf. Thiery 1993, 507. *Refugees in Athens*: Th. 2.17.

²⁶This section is based on Pimpl 1997, 117-22; Hölscher 1998a, 29-45.

I will focus on them (Pimpl 1997, 117-8). The fragments of archaic *perirrhanteria* found close to building F and its succeeding building, the Tholos, can probably be connected with cleansing rites before cultic banquets or the feasting of the *Prytanes* (Pimpl 1997, 72-4). Other water-basins seem to have functioned as transitional markers of areas within the *agora*, such as the fragment found near the New *Bouleuterion* of the Younger *agora* and the epigraphically documented *perirrhanterion* close to Ekklesterion of Delos, both probably marking the boundary between an area in which political decisions were made and those of political insignificance. There is also evidence that the Athenian *bouleuterion* was subject to other kinds of purificatory rites, involving the shedding of pig's blood (Parker 1996, 21-2 (with references)). The last two examples show that ritual acts of purification could have strong political connotations.

It has also been argued that *perirrhanteria* stood at the entrances of the Younger *agora* and marked out the entire *agora*.²⁷ This would allow for the view that ancient Greeks conceived of the Younger *agora* as a sacred place and, more generally, that sanctuaries and *agorai* were regarded the same. This interpretation is based on a few fourth century Attic literary sources referring to an area characterised as 'within the *perirrhanteria* of the *agora*' (ἐντός τῆς ἀγορᾶς τῶν περιρραντηρίων) to which access was denied to Athenian men who prostituted themselves, cowards and deserters, and a *scholion* on Aeschines' passage in Ktesiphon which stated that the *perirrhanteria* were close to the entrances.²⁸ Other scholars understood this passage as a reference to a legislation excluding people who had transgressed the laws from a specific area *within* the *agora*. This view was supported, for example, by Pimpl (1997, 120), who drew attention to the way in which Aeschines and Demosthenes presented their cases. It can also be supported by stressing once more the fact that scholiasts did not always have a correct knowledge of the past (cf. p. 452). The most powerful argument in favour of Hölscher's statement that the *agora* was not a cult place like a sanctuary, but a place *with* cults and, as I would like to add, with places of religious significance, is, in my opinion, the fact that sanctuaries close to *agorai* were visibly and conceptually separated from them by boundary stones (Hölscher 1998a, 43-5, 53-62).

Which area within the Younger *agora* the forensic speeches allude to is not clear. While Ziehen (1937, 857) suggested that the water-basins were related to the *περισχοινισμα* (space marked off by a rope for meetings addressing political and

²⁷e.g. Wachsmuth 1890, 411; Martin 1951, 164; Wycherley 1957, 218; Thompson & Wycherley 1972, 117-8; Goussier *et al* 1994b, 358.

²⁸*Forensic speeches*: Aeschin. *Tim.* 21, *Ctes.* 176; D. *Androt.* 77; *Tim.* 60. *Scholion*: Schol. Aeschin. *Ctes.* 176 (πρὸ τῆς εἰσοδοῦ τῆς ἀγορᾶς ἢν περιρραντήρια παρ' ἐκάτερα).

legal issues), Pimpl (1997, 121) argued more convincingly that they were related to the area around the New Bouleuterion. This association has two important implications and consequences. On the one hand, it adds another example to Hölscher's list (1998a, 43-5), accumulating evidence for his hypothesis that the cults (and rites) of *agorai* had strong political connotations. On the other, it shows that individuals who did not live according to the ethical norms of the *polis* were excluded not only from public sanctuaries, but also from the process of political decision-making. This was a very harsh punishment for people like Aristotle who regarded the ζῶον πολιτικόν as the only good form of human existence (cf. Shearman 1997, 123, 210 n. 3).

SANCTUARIES

For Classical sanctuaries, the issue of cleanliness is played out on a number of different levels which will be examined in the following section. In addition to 'material' dirt, dirt as a social marker and as 'matter out of place' – which we have seen played a role in the contexts considered before – it is here the question of 'immaterial' dirt in a sacred contexts (already touched upon with regard to sacred space in *agorai*) which gains prominence and which needs to be considered in its intersection with other modes of dirt. Evidence consists of data relating to cleansing practices for specific rituals and installations on the one hand, and regulations concerning access to and cleanliness within the sanctuaries. In particular we can trace an increased involvement of the *polis* in the process of keeping sanctuaries clean, although we will find that this is largely restricted to a legislative and supervisory function.

Before proceeding to address the question of *polis* regulations concerning sanctuaries as a whole, I will consider the specific cleansing practices attested within the space of the sanctuary. Within *temenoi*, *anathemata* (votive offerings), cult statues and cult objects were regularly cleaned and/or anointed.²⁹ Κόσμησις inclusive of anointment is even documented for plants such as Helena's tree (Theocr. 18.44). Little is known about the frequency at which the different features and implements of a sanctuary were cleaned. The surviving references suggest that the cleaning frequency of cult statues was lower than that of votive offerings. They also give evidence that a monthly cleaning of cult statues and a daily cleansing of votives were considered unusually high frequencies.³⁰ As far as the architectural features of a sanctuary are concerned, temples have received much more scholarly attention than altars, although the latter were the most important features in sanctuaries and the focus of ritual activities.³¹ I will briefly review the available evidence

²⁹e.g. app. C with n. 3, app. D, pp. 407-16; Blech 1982, 271 (references); Kahil 1994, 217. *Ganosis as part of the Kosmesis of cults statues*: Homolle 1890.

³ *Monthly*: The pomp. fr. 344 (FGrHist) *Daily*: Thphr. Char. 21.11.

³¹ *Temples*: Parker 1996, 21 with n. 14 (references), 23.

on the cleanliness of altars and critically discuss the views presented so far on this topic, in order to arrive at a complementary view on the question as to whether remnants of a ritual action could ever be held in a low esteem. More specifically, I shall attempt to explore whether the presence of remnants of the god's portion, namely blood and sacrificial ashes, were considered incompatible with the sacred nature of sanctuaries. These results can, then, be compared with those resulting from the discussion on whether sacrificial ashes were discarded like rubbish (III.2.3).

There seems to be a common agreement that altars had to be pure before the killing of the sacrificial animals could take place. It has been suggested that the pavement around the altar of Artemis at Ephesos and the supply of this area with water around 500 B.C. may be explained in terms of improvement of purification for sacrifices (Bammer 1978, 145-6). It is also commonly believed that the rites immediately before the slaughter had kathartic functions.³² There existed, however, already in antiquity, a disagreement about which of the 'pre-killing' rites aimed at the purification of the altar. Empedokles, for example, noted that the altars were washed with the blood/slaughter of bulls, while the scholion on Aristophanes' *Pax* explained that χέρνιψ and κανοῦν (vessel containing water for purificatory rites and basket containing sacrificial equipment such as barley and knife) were carried around the altar to purify it.³³ Athenaios (409B), by contrast, considered the sprinkling of water with a burning torch as a kind of purification ceremony (cf. Ar.

There is also a disagreement as to whether or not the remnants of the god's portion were cleaned away from stone altars, and if so whether this was done immediately after the rites or before the sacrifice to come.³⁴ If the traces of one sacrifice were not to be removed for another to follow, this would mean that they either carried a neutral connotation or were considered symbols of the 'devotion to the gods', as Stengel put it. If the remnants of the god's portion were to be removed from the stone-altar before the next sacrifice could take place, these remnants were considered either 'matter out of place' or dirty and polluting. But our source do not allow any further conclusions regarding this matter.

Scholars who claimed that ancient Greeks did not make invisible dried blood based their arguments either on the practical difficulties involved in permanently removing the traces of blood, as Stengel did, or referred to archaic and classical vase-paintings depicting

³²e.g. Reisch 1894, col. 1687; Walter 1990, 35; Voutiras 1999, 244-5 with ns. 50-1.

³³Empedokles B128 (Diels-Kranz, ap. Porphyry, cf. Stengel 1972, 18-9, 32); Schol. on Ar. *Pax* 959.

³⁴*No cleaning*: Stengel 1972, 18-9, Straten 1995, 105. *After the sacrifice*: Németh 1994b, 62. *Before the next sacrifice*: Reisch 1894, col. 1687; Walter 1990, 35; Kosian 1997.

sacrificial victims about to be killed on an altar which is stained with blood.³⁵ They do not base their statements on firm grounds. Against Stengel it can be argued that whitewashing was considered an appropriate solution to wipe out dried blood, as is indicated by an inscription found at Olympia. Against Straten it can be argued that vase-paintings showing blood stained altars before the killing of a sacrificial beast could alternatively be explained in terms of a symbol signifying piety or a multiple sacrifice - that is to say blood from a sacrificial animal, which had been killed in the same cult just before the one still alive. Scholars stating that stone-altars were cleaned from blood at some point before the next sacrifice would take place can refer to the Olympian inscription, but not, as Reisch claimed, to the Delian list of cleansing agents.

To conclude, it is difficult to prove that blood of sacrificial victims was cleaned away in pre-Hellenistic Greece. The only evidence for this practice comes from Olympia. The attitude towards blood in this case stands in sharp contrast to the ash-altar at Didyma, which consisted of ash mixed with blood (Paus. 5.13.11). Sacrificial ashes seem to have been removed between sacrifices from stone-altars. Thus, they were considered disturbing in one sense or another. Since sacrificial ashes used to be treated carefully after their removal from the altar, it can be assumed that ashes were not considered dirty or polluting. Behavioural changes regarding the treatment of sacrificial ashes and blood seem to have been interrelated with the shift from ash to stone-altars. It cannot be excluded that this shift was itself linked to changing perceptions of cleanliness.³⁶ The verification or falsification of this hypothesis would require more in depth research, which goes beyond my research topic.

Beyond these specificities of cleansing practices within sanctuaries, there are general rules and regulations regarding the cleanliness of sanctuaries that are of significance for an assessment of the attitudes to spatial cleanliness in a sacred context. It is well known that sanctuaries were protected against different kinds of dirt and pollution. Burkert (1988, 34-5) distinguished three different protective zones within sanctuaries: the outermost zone was that of the *temenos*, the following that around the ναός (temple) and the innermost that around the ἔδος (bench). One way of protecting the boundaries against intrusion of uncleanness consisted in the provision of lustral water at the entrances to sacred ground (e.g. Crouch 1993, 284; Pimpl 1997 49-58). Water for lustration could derive from sources (e.g. the Kastalian spring at Delphi, from wells (e.g. the so-called Kassotis or muse-well at Delphi) the sea (e.g. Heraion of

³⁵e.g. Tondo of an Attic red figure *kylix* of the late sixth century, Paris Louvre G 12.

³⁶*Contra*: Aktsehl 1996, 15.

Samos), or *perirrhateria*.³⁷ Other strategies employed to ensure that only 'clean' individuals, groups of persons, animals, objects and substances had access to sacred ground consisted in the ratification of the so-called Sacred laws and the hanging-up of public lists marked with the names of people whom the laws forbade to enter the temple and *temenoi*.³⁸

It has been stated that all prohibitions regulating access to sacred grounds were concerned with maintaining cultural purity.³⁹ I think that these generalising statements do not distinguish carefully enough between the categories of 'matter out of place' and 'dirt/pollution', a point I discussed in more detail in connection with Douglas' analytical framework under I.2.1. As 'matter out of place', I consider, for example, fancy clothes that were prohibited to be worn in the cult of Demeter Thesmophoros in fifth-century Arkadia or that of Demeter in third-century Patras as well as vehicles and women who were denied access to some cults of Herakles.⁴⁰ More specifically, the first prohibition may be explained in terms of incompatibility of fancy clothes with the maternal character of Hera and the second legislative provision as a means to keep disturbances in sanctuaries at a minimum. The third prohibition may be convincingly interpreted with Osborne (1983, esp. 398) as defining the cult community and, thus, the group of people eligible for the sacrificial meat.

Preston (1995, 93) stated that menstruation is one of the functions most widely seen as polluting, second only to death. This general statement only partially apply to ancient Greece. It can be concluded that menstrual blood and menstruating women were not considered polluting in pre-Hellenistic Greece, because not a single Sacred law or magic practice dealing with menstruating women has survived from this period (cf. II.3.4). Death, by contrast, seems to have played a much more significant role, as the purification of Delos and Hellenistic Sacred laws forbidding to wear leather clothing made from dead animals, i.e. non-sacrificial animals, indicate.⁴¹

Prohibitions which may be interpreted as an attempt to keep polluting animals out of sanctuaries include those denying dogs entry to the Athenian Akropolis, to Delos and

³⁷Source: Amandry 1996, 88-9. Well: Amandry 1996, 91. Sa: Walter 1990, 34. *Perirrhateria in sanctuaries*: Pimpl 1997, 49-58.

³⁸Sacred laws: e.g. Sokolowski 1962, no. 50.4. *Literary reflections of Sacred laws*: cf. above s.v. *agrai* pp. 455-6. *Literary reflections*: e.g. D 24.21, 181.

³⁹e.g. Wachter 1910, 6; Chaniotis 1997, 144-8; Voutiras 1999, 236 with n. 13, 248 with n. 75. *Contra*: e.g. Blech 1982, 364; Osborne 1993, 398.

⁴⁰*Clothes*: Sokolowski 1962, no. 32.1-2; no. 33.1-8. *Vehicles*. cf. Dillon 1997, 122. *Women*: listed in Osborne 1983.

⁴¹*Purifications*. Hdt. I 64, Th. 3.104. *Prohibitions*: Cf. above, p. 443. *Death by sacrifice as non-death*: X. An. 4.5.35. Cf. Parker 1996, 52 with 72.

other sacred islands⁴² That the exclusion of (wild) dogs from sacred places was based on their perceived ritual uncleanness may be deduced from their scavenging habit and the fact that dogs had the reputation to bring about cures the sick in the sanctuary of Asklepios at Epidauros, if the therapy was based on the principle 'fighting dirt with dirt'.⁴³ This interpretation does not exclude the possibility that these laws also aimed at preventing dogs and other wild beasts from consuming sacrificial meat.⁴⁴ As with dogs, McDonough (1999, esp. 467 n. 7, 468) argued that flies, inevitable guests at sacrificial feasts, were a source of pollution and that their exclusion from some sanctuaries and cults, such as one of Herakles, was a matter of purity.

The sacred was also shielded off against certain substances, which are specified in the waste disposal regulations of Sacred laws. The majority of Classical legislative disposal regulation were concerned with keeping *kopros* out of *temenoi* and temples (cf. Ar. Pl. 1184). At Delos and at Epidauros *kopros* and *spodos* (ashes) could not be dumped into the sanctuaries (cf. II.1.3). At a sanctuary at Paros, a decree of the late fifth century B.C. defines ἐκκαθάρματα (liquid deriving from the cleansing of intestines (?)) after the sacrificial procedure) as intolerable in connection with the sacred.⁴⁵

In addition to κόπρος, σπόδος and ἐκκαθάρματα, there was *bird's excrement* which was not tolerated on votive offerings and buildings within the sanctuary at a variety of times. The *meniskoi* of some archaic marble statues were probable not inserted to avoid nest building, since the rounded surface of the head is an inconvenient place to do so, but to prevent birds from resting, fouling up the statues as well as destroying the *ganosis* and the paint (fig. 13)



Fig. 13 Meniskos on archaic statue

⁴²e.g. X. Cyn. 5.25; S. Kolowski 1962, no. 112 4 B. Cf. Scholz 1937, 7-8; Parker 1996, 357 with n. 5; McDonough 1999. *Prohibition for swine and swineherds to enter Egyptian temples*: Hdt. 2.47.1.

⁴³*Dogs of Asklepios*. IG IV² 122; 123.20, 26, cited in Dillon 1997, 125. *Curing dirt with dirt*: app. C.

⁴⁴*Dogs at sacrifices*: Paus. 5.14.1; Berlin F 1915 (ABV, 377 no. 247; Durand & Schnapp 1989, fig. 75).

⁴⁵*Law*: Sokolowski 1969, no. 111. *Meaning of ἐκκαθάρματα*: Németh 1994b, 64 n. 45; II.1.3.

In Euripides' *Ion* (154-83), the defilement by bird's excrement seems to have been the major motivation for Ion to threaten the birds to approach the temple. In a way, Ion does not seem to distinguish between intentional defecation by humans and non-intentional waste disposal. More specifically, Ion appears to treat the defilement by birds as an intentional act of defecation aiming to make a visible statement about religion (cf. III.1.9). It is unclear as to whether Ion intends to prevent aerial excrement' or faeces dropped by birds resting in niches, and ledges, including the pediments (cf. Dillon 1997, 125). Sanctuaries containing a sacred grove, must have had many birds both flying over building within the sanctuary and resting on trees and architecture. To my knowledge, architectural studies on Greek temples do not mention any traces of installations on temples which are interpreted in terms of preventing birds from resting on temples. This may mean that the defilement by bird's excrement was not considered important enough by the political community to take measurements against it. Individuals, such as Ion, obviously had a different attitude towards it.

Apart from excrement dropped by various kinds of animals, *onthos* was a major concern of Greek Sacred laws (cf. II.1.3). Whereas *onthos* was left at the spot where the sacrifice took place in Homeric times, it had to be cleaned out of the cave of the nymphs in the hills of Vari along with the inner parts which found their way on to the floor during the sacrificial procedure in the first half of the fifth century B.C.⁴⁶ The Hekatompedon decree from the Akropolis of Athens, which was inscribed into two blocks of the so-called H-architecture, has a regulation which reads $\mu\epsilon\delta' \acute{\omicron}\nu\theta\omicron\nu \acute{\epsilon}\gamma\beta[\alpha\lambda\tilde{\epsilon}\nu]$.⁴⁷ Following my interpretation, this passage is a prohibition against animal dung being removed within the Akropolis in this area and beside the Hekatompedon (cf. II.1.2).

The decree from Delos from the end of the third century B.C. makes clear how seriously the concern with a clean sanctuary was taken at some places. Anyone who dumped dung or ashes into the sanctuary of Dionysos and Leto was to be brought before the *boule*. A slave was to be given fifty lashes (and was to be placed in a pillory for this purpose), while a free man was to be fined ten drachmas. The seriousness with which the offence was regarded is further indicated by the fact that the informer was rewarded with half of the fine. In other Greek *poleis*, the informer who watched the offence, but did not report it to the *boule*, was also fined.

⁴⁶Homer *Il.* 23.775, 777, 781; Sokolowski 1969, no 9. Cf. app. G 1.

⁴⁷Sokolowski 1969, no. 3 Cf. app. G.1. *Critical discussion of this passage:* cf. II.1.3.

The legislative prohibitions of waste disposal in sanctuaries set out a normative code of social behaviour. We can suspect that was a plurality of competing norms and concepts before the erection of the inscriptions regarding the perception of sanctuaries. The legislation did not succeed in unifying the discourses towards a normative discourse, otherwise the passages which either encourage the informer with money to report before the *boule* or those which threatened the witnesses that failed to report before the council would not make any sense. Which social groups or interests were competing? Whom did the regulation address? The Hekatompedon-inscriptions are addressed against cult personnel. All other regulations concern all people visiting sanctuaries, including citizens and slaves, men and women, inhabitants of a *polis* and strangers (cf. III.2.4, 3.3). In democratic *poleis* such as Classical Athens there was the remarkable situation that people ratifying disposal laws may have been identical to those offending them. In these cases, the disposal regulations may not be interpreted as an attempt of the group of people in power to control the remaining society and to force upon them their world-view. They may be rather considered as an attempt to establish the official ideology of the *polis* which took a special interest in presenting sanctuaries as special places over that of the individual, who appears to have classified sanctuaries just as public places.

The earliest evidence for *polis* authorities taking an interest in the cleanliness of sanctuaries seems to have been the Hekatompedon inscriptions, which are commonly dated to 484 B.C. This might lead to the conclusion that the personal cleanliness of the population, which is attested practice from earlier on, was more important than ensuring standards of spatial cleanliness. It is, however, generally assumed that oral agreements preceded a written fixation of norms. This has two consequences. First, the date 484 B.C. can only be considered a *terminus ante quem*. Second, and related to the first point, it remains unknown whether personal or spatial cleanliness came first on the agenda of *polis* authorities. The purification of Delos by Peisistratos may indicate that they occurred roughly at the same time. In any case, by the Classical period, personal and spatial cleanliness were on the agenda of *polis* authorities, as the legislation and the public bathing facilities close to sportsground show (cf. app. D).

Judging from the amount of surviving legislative regulations ensuring the cleanliness and purity of public sanctuaries, it may be concluded that *polis* authorities cared more for sanctuaries than for other public places. This preoccupation of *polis* ideology with public sanctuaries may be explained with the distinguishing role sanctuaries played in the political and social life of every Greek *polis* (cf. Polignac 1995). The space of a city was defined by sanctuaries. In addition, sanctuaries played a significant role in integrating members of the civic community and in creating new forms of solidarity, because they

provided the place for cults of the *polis* in which citizens and other inhabitants of the civic territory could participate. They were also the places where the history of a *polis* was made by erecting public and private monuments and by destroying and recycling statues of political leaders which had fallen into disregard.

To sum up: sanctuaries were marked out by *perirrhanteria* as places of special religious and political importance: as *temenoi* - places cut out from the surrounding area. The perception of sanctuaries as places with distinguishing modes of cleanliness can also be deduced from a number of prohibitions mentioned in Sacred laws regulating disposal behaviour in sanctuaries and prohibiting access, for example, to dogs and murderers. Thus, presenting sanctuaries as special places, places with outstanding standards of cleanliness or places requiring an extraordinarily high degree of cleanliness seem to have been at the heart of the ideology of city-states and *polis* symbolism. That sanctuaries were not regarded as special places by the entire population at all times can be deduced from the behaviour of (some) visitors in sanctuaries and a passage in Aristotle, in which he only distinguished between privately owned and common land (cited in Isager & Skydsgaard 1995, 119).

CEMETERIES

Little evidence has survived which linked cleanliness to cemeteries. The so-called Iulis law regulating funeral practices at fifth century Keos, which prohibits to 'take the sweepings (καλλύσματα) to the tomb', for example, did not aim at keeping cemeteries clean, Parker argued convincingly, but at avoiding superstitious practices.⁴⁹ More specifically, he argued that this legislation aims at prescribing the correct distance at which the death-polluted sweepings were to be disposed of: It rejected the deposition as far away as the Kean cemeteries as socially objectionable behaviour and approved of the disposal of the sweepings at any distance closer to the house. In addition, in contrast to Rome, no unequivocal reference to disposal regulations has survived for pre-Hellenistic Greek cemeteries.⁵⁰ If this lack of evidence is meaningful it can be concluded that cemeteries were the only public places which were not on the agenda of *polis* authorities. Evidence which may perhaps be associated with the

⁴⁹Law: Sokolowski 1969, no. 97 A 22-3. Cf. app. G.2. *Interpretati n*: Parker 1996, 36. *Contra* Pomeroy 1997, 108.

⁵⁰ Oikonomides interpreted a fragmented inscription on a gravestone at Beroea (Coramck 1940-5, 106 no. 2) as a Greek disposal regulation, but I think it is too fragmented to be sure about this reconstruction. - On the Roman law regulating the dumping of *stercus* (excrement in its primary sense; any undesirable product to be discarded) in the Esquiline cemetery in the early first century B.C. cf. *CIL* I² 838-9, after Kyle 1998, 166, 179 n. 70. On the Lex Lucerna from Apulia, a local ordinance probably from the third century B.C., regulating the dumping of *stercus* in the groves of Libitina, which were, as Bodel (1986, 3-4, 64-8) argued convincingly not a sacred grove, but a public cemetery, cf. *CIL* I² 401, cited in Kyle 1998, 166-7, 179 n. 74.

maintenance of graves and cemeteries respectively are three Greek inscriptions found in Lycia, which mention an institution called μίνδις or μενδίται, alluding to the Lycian *minti*.⁵¹ However, even if the tasks of the *minti* included the protection of graves not only in the sense of keeping grave robbers away, but also in the sense of keeping them clean of defilement, it needs to be stressed that Greeks in Lydia did not widely appeal to the Lycian institution of *minti*. Finally, it is likely that the practice of anointing tombstones did not aim so much at cleaning the grave but at cleaning the dead (Paszthory 1992, 45). The anointing of graves would then have to be viewed in the context of the provision of the dead with oil and the burial custom of placing them into bathtubs and bathtub-like burial-vessels (cf. app. D with n. 72).

Some modern scholars argued that the dead started to be regarded as polluting with the emergence of the *polis* in the course of which the spheres of the dead, the humans, and the gods became conceptually and spatially separated.⁵² More specifically, they argued that the change from intra- to extra-mural burial - occurring in the early eighth century B.C. in the newly founded settlement of Eretria and as a panhellenic phenomenon from around 750 B.C. - as a shift in the conceptualisation of the dead from non-polluting to polluting.⁵³ They support their view with reference to archaic and classical literary and epigraphic sources that call the dead polluting, tombs mischievous, and mention the disposal of polluted substances such as sweepings or wash-water as deposited at graves.⁵⁴ It is reasonable to argue, then, that cemeteries were conceived of as places containing polluting people, the dead, and that their perception drew on notions of dirt and pollution. This would create a dichotomy between sanctuaries, for which the concept of cleanliness and purity was extensively exploited, and cemeteries that were associated with notions of pollution and dirt.

It is noteworthy that the supposed shift from intra- to extramural burial practices was not that clear-cut. More specifically, although the majority of dead people used to be buried in specialised areas outside of sanctuaries, *agorai* and settlements, there still occurred a significant number of intra-mural burials. Archaic and classical tombs were

⁵¹*Inscriptions*: Kalinka 1920, no. 40, 62 (Telmessos); Petersen & Luschan 1889, no. 27 (Kyanæae). *Minti*: e.g. Bruce 1976, 183-4, Strubbe 1991, 53 n. 75

⁵²*Separation and walling-off*: e.g. Morris 1996, 26; Holscher 1998a, 63 with n. 76 (bibliography); Holscher 1998b, esp. 159.

⁵³*Dead as source of pollution*: e.g. Parker 1996, 41. *Chronology*: Holscher 1998a, 63. Differently, Morris (1996, 26) who regards Corinth around 750 B.C. the earliest example. *Panhellenic m.*: Morris (1996, 26-7, cf. 1987, 189-92) emphasised that a 'panhellenic' change in pollution beliefs can only be observed for adult dead humans, since the spatial disposal pattern of children vary considerably from place to place. Whereas children were buried together with adults outside of the settlements in Corinth after 750 B.C. and thus considered as polluting as adult corpses, they stayed in the settlement at Argos as in Athens between 725 and 700 B.C.

⁵⁴*Dead as source of pollution*: E. *Hel.* 1265-70; *Hipp.* 1437. *Tomb*: Hes. *Op.* 734; *Thphr Char.* 16.9. *Sweepings*: cf. above n. 50. *Washwater*: Parker 1996, 36 n. 15 (references).

found in the vicinity of settlements, in particular farmsteads, in *agorai* and sanctuaries.⁵⁵ This evidence may imply that the pollution beliefs was subject to regional variability or varied from city to countryside.

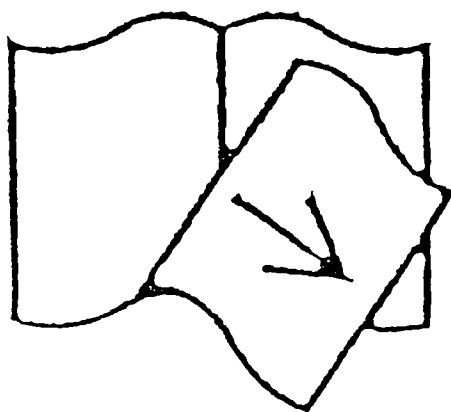
The reexamination of the distribution patterns of geometric tombs has shown that the shift from intra- to extramural burial practices cannot be explained with a shift in the attitudes towards the dead. Lang (1996, 70-2) pointed out that geometric settlements were scattered settlements and that, therefore, burials found outside of a house, but within *later* boundaries of a settlement cannot necessarily be categorised as intramural burials. Roncoroni (in press, 85 with n. 41) expressed the view that many of the so-called intra-*oikos* burials were in fact child burials and that adults tended to be buried within houses only in the early geometric period. Based on the results of Lang and Roncoroni, the shift between the (late) geometric and archaic adult burials may be more precisely redefined as a shift from extra-*oikos* to extra-mural burial. Having Hodder's (1990; cf. I.2.1) interpretive study of disposal patterns of Neolithic European households and communities in mind, this spatial change may be also explained in terms of an extension of the self, in this case from the *oikos* to the *polis*, or from τὸ ἴδιον to τὸ κοῖνον. In particular the study of Roncoroni suggests that a major shift in attitudes occurred in the course of the Geometric period, when adults were no longer buried within, but outside of the 'self', to use Hodder's terminology. This seems to indicate a shift in the social configuration of the individuals, from the *oikos* to the *polis*-community.

To conclude, I argued the shift in attitudes towards the dead members of Greek society may already have occurred in the Geometric period, if Roncoroni's data are reliable. I also suggested to link the shift from extra-*oikos* to extra-mural burial practices, if there was indeed such a interregional change as Roncoroni stated, to conceptual changes reflecting and constructing the new-*polis* ideology, stressing the community (τὸ κοῖνον) rather than the individual and the *oikos* (τὸ ἴδιον). This interpretation does not differ much from arguments stressing the interconnectedness of processes leading to the separation of the spheres of the dead, the living and the gods with the development of the *polis* (e.g. Morris 1995, 53; Hölscher 1998a, 63). At least some archaic and classical individuals (Hesiod, actors in tragedies, superstitious people) regarded the dead and tombs as polluting. Thus, it is reasonable to argue that cemeteries were rather linked with concepts of dirt and pollution, while sanctuaries were rather linked with concepts of cleanliness and purity.

⁵⁵Archaic and classical farmsteads: D. 60.14, Lohmann 1992, 29, 34-5, 49, 51. Hero-graves in *agorai*: cf. IV.4.3-4. Burial of a person struck by lightning on the very spot: Elderkin 1941, 113. Sanctuaries: Hdt. 1.64; Th. 3.104.

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APPENDIX F. DISPOSAL OF THE DEAD

Burial practices shall be discussed within my framework of waste disposal from two perspectives. Initially, I shall explore disposal practices that may be associated with the English expression 'to be disposed of like rubbish'. This kind of disposal technique produces in my understanding burials involving little or no care and effort or depositions of the dead without burial rites (ἄταφον ῥιπτεσθαί).¹ More specifically, I shall analyse which social groups and individuals were buried carelessly or were denied burial rites by *polis* authorities with a view to explore which social groups and individuals were considered marginal, worthless or abominable. I shall also shed light on possible meanings and implications of the chosen execution and disposal method, which included throwing marginal people either alive or dead into a pit, a fissure or the sea, or casting the dead outside of the boundaries of the homeland. Secondly, I will illuminate the cultural significance of secondary (de facto) disposal practices of the dead, which includes the extreme cases of reburial as well as exhumation and casting out the physical remains of the dead.

The differentiation between adult and child burials in most communities from the Dark Age to the Classical period has long been seen.² It was expressed at different times and in communities in various ways, namely cremation vs. inhumation and vice versa, spatial separation from adult burials, visibility vs. non-visibility, burials in (often already used) pottery containers, namely *amphorai* and *pitthoi*, and most important for this context, no involvement of care and effort vs. involvement of care and effort.³

¹*Disposal of human remains in other cultures*: Hill 1995, 11-3 (English prehistory); Shepherd 2001 (ancient Sicily).

² e.g. Sourvinou-Inwood 1995, 429-33; Morris 1996, 18-9, 26-7. - Slave burials cannot be discussed here, as there is too little known about them in terms of location and the degree of care and effort involved. Although the master was required to bury his slave (Ps-D. 43, 58; 47, 70), only a few slave burials have been found within ordinary cemeteries, such as Attic peribolos tombs (Garland 1982, 132. Cf. Pomeroy 1997, 116). This phenomenon may be explained, as Pomeroy argued, in terms of slaves being simply excluded from cemeteries that have been studied or in terms of slaves being buried anonymously in the family plot, or in terms of slaves burials not being indicated as such, as slaves lost their lowly status in death. I think it seems reasonable to assume that slaves were denied burials within ordinary cemeteries, at least in classical Athens, because even freed slaves fighting for the freedom of Athens and Greece and dying in the battle of Marathon were buried like the Plataians separately from the Athenians (Bomer 1963, 150-1 with n. 3) whether their burial was carried out less carefully at Marathon is impossible to say. A change in the burial practice of Athenian slaves dying in a battle may be deduced from a passage by Pausanias (1.29.3-7), which seems to indicate that non-freed slaves and Athenians were buried together after the battle against Aegina. This special treatment would not necessarily affect the treatment of corpses of slaves in everyday life. In contrast to Rome (Kyle 1998, 19, 163-5, 176 n. 47), little is also known of the burial of the pauper apart from Ps.-D. 47.70. Mass burials (τολυάνδρια), where people were buried in the darkness of anonymity have not been discussed systematically (Pfister 1909, 318-21 and Holscher 1998, 91-4 both discussed only mass burials of soldiers).

³*Cremation/inhumation*: e.g. Kurtz & Boardman 1971, 175, Morris 1995, 50; 1996, 18-9, but Corinth (Morris 1996 18 with n. 22). *Separation*: Morris 1995, 46; Mazarakis Ainian 1999, 20-1. *Visibility*: Sourvinou-Inwood 1995, 430-1; Mazarakis Ainian 1999, 18. *Effort/care*: Kurtz &

Sourvinou-Inwood pointed out that, from the eighth century B.C. onwards, the differentiation diminished, as child burials involved more effort and energy spent and as they appear in the main cemeteries or in separate cemeteries (Sourvinou-Inwood 1995, 429-33). The distinguishing disposal practices of adults and subadults lead to the conclusion that the adult vs. subadult distinction was a major axis of mortuary differentiation and a very significant category among Greek society. The careless disposal of subadults has been explained in terms of the understanding of subadults as insignificant, marginal beings and non-personae (Parker 1996, 41). The increasing care and effort involved in child burials indicate, however, that, from the eighth century B.C., children were still considered marginal beings, albeit to a lesser degree. More specifically, subadults appear to have been more incorporated into a family plot from this time, a process that seems to have been embedded in broader social transformation processes leading to an increasing significance of the family. Research at the Klazomenai cemetery suggests that this differentiation was not always synonymous with low and high status, but also with the economic situation of the family, as here carefully placed child corpses with precious grave goods were found along with those placed in broken *amphorai* (pers. comm. B. Hürmuzlu).

An even stronger association of disposal practices of children with that of rubbish occurred whenever unwanted new born children were exposed (ἐκβάλλειν, ἐκτίθεσθαι or ἀποτίθεσθαι).⁴ Human and divine babies were abandoned for a number of reasons, including disability, illegitimacy, sex, rejection of daughters, fear of the father that his child may gain power over him, and economic situation of the parents.⁵ They were primarily exposed in barren landscape or on the κοπρίαι (dung-hills), but also, as in Sparta, cast into chasms. Expulsion from the social community and exposure to the elements or casting into fissures inevitably lead to the death of the new born child.⁶ Thus, it may be said that the physical death was preceded by a social death.⁷ In contrast to the former disposal method, exposure on dung-hills was not necessarily motivated by infanticide and, therefore, did not involve invisibility.⁸ This disposal method allowed for the baby to be taken by someone in need for a child, that is in my terminology to be reclaimed from the waste stream.⁹ In fact, the deposition of the unwanted child on the dung-hill appears to be rooted in the parental wish that the child

Boardman 1971, 175; Bremmer 1983, 96; Sourvinou-Inwood 1995, 430-1. *Pottery*: e.g. Morris 1996, 18.

⁴*Greek terms* Golden 1981, 330-1.

⁵*Examples*: e.g. Weiss 1921, esp. 464-5; Golden 1981; Dreimann-Merten 1986, 274-81. *Prohibitions*. French 1988, 1356.

⁶*Roman ways of killing a baby*: Kyle 1998, 180 n. 86.

⁷*Social death preceding physical death in modern Europe*: Hubert 1999.

⁸Cf. Hom. *Il.* 1.590; 18.395-7 (κρύβειν).

⁹*Roman methods of child exposure that did not necessarily mean death*: Kyle 1998, 180 n. 86.

as the *kovpro*" on which it was laid down would go through the stages of 'matter out of place' to 'be beneficial to an *oikos*'.¹⁰ It has been suggested that children taken from dung-hills were given names such as Κοπρεύς and Κοπρία, but Kajanto (1962, esp. 49, 52-3; cf. Perdrizet 1921, esp. 90) argued persuasively that these names did not denote the origin of the persons ἀπὸ κοπρίας. The implications of both disposal methods allow conclusions to be drawn about the type of children exposed. Whereas new born babies exposed on dung hills were most likely healthy and did not have any stain when disconnected from the family, those exposed to the elements were regarded as endangering the stability of the community or living exclusively at the cost of the community due to weakness or disability.

Most adults were extremely sensitive to the fate of their corpse. Being thrown away carelessly, without at least a token act of burial (ἄταφον ῥίπτεισθαι) was considered by most Greeks an undesirable fate. Sophocles' *Antigone* and Euripides' *Suppliant women* poignantly depict the social implications of denial of burial on the one hand and the social importance of burial on the other. The social significance of burial practices can further be deduced from one of the Bouzygean curses threatening everybody neglecting the human obligation of burial (Parker 1996, 44 with n. 44). There were, however, minority groups such as the Cynics who denied the requirement for burial for themselves and, thus, denied the significance of burial. Diogenes, for instance, is said to have left instructions that his corpse should be thrown out unburied or into the Ilissos. The explanations given for these unusual instructions are that Diogenes aimed at either feeding 'every wild beast' or being 'useful to his brothers.'¹¹ Diogenes' statement is a powerful demonstration of extending the value system, on which his philosophy was based in life, into the next. Of crucial importance for this context is the conceptualisation of animals in his understanding of the world. First, Diogenes denies the superiority of humans over animals. In this statement, he takes it to an extreme point, but the idea that animals are not inferior to humanity can also be found in other passages, for instance, when he said that people could learn from the behaviour of mice (D.L. 6.22; II.4.2). As Diogenes was not a mainstream philosopher, it can be concluded that what most Greeks feared most was to lose their high social status and to become as low as animals, when disposed of without burial rites. More specifically, 'to be disposed of without burial rites (ἄταφον ῥίπτεισθαι) seems to have been synonymous with 'be disposed of like an animal'. Thus, the Greek equivalent to the English phrase 'to be disposed of like rubbish' may be formulated as 'to be disposed of like an animal'. That

¹⁰Romans deposited unwanted infants on dung heaps, who were mainly taken by slave dealers, but threw corpses of gladiators of servile status on dung heaps, although evidence for this is so far confined to Sassina (Ville 1981, 462-3).

¹¹D.L. 6.79 (Diogenes). Cf. SVF 1, 253.

the distinction animal vs. human being indeed played a crucial role both among the living and in disposal practices can be seen in the rhetoric of forensic speeches and the *Athenaion Politeia* respectively. In particular, Demosthenes called frequently traitors and law-breakers, who used to be disposed of without burial rites, *miaroi* (shameless and disgusting creatures) and animals (θηρία; ἄγριοι).¹² In the *Athenaion Politeia*, Aristotle gave evidence that carcasses found in the streets of Athens were either not disposed of at all or carried away by *koprologoi* together with *kopros* (app. E, s.v. settlement). Second, because of the understanding of the human body as nothing special, Diogenes did not consider human flesh an inappropriate and abominable source of food as most of his fellow citizens. Consequently, there was no reason for him to exclude human corpses from recycling processes. His instructions leave no doubt that Diogenes intended to make an *intentional* contribution to, what I call in my framework, recycling processes. In this respect, he went further than other individuals, such as Heraklitos, Epicharmos, Euripides and Epikuros, who had been aware that all corpses *de facto* fertilise the earth.¹³ Diogenes' explicit wish to feed his body to the beasts is not the only documented concern for recycling practices. It can be rather interpreted, I suggest, as an extreme form of making use of items and substances that were commonly held useless, examples of which I discussed under II.3.4.

For the majority of ancient Greeks, however, the disposal of a corpse of an adult like an animal or a μισρόζ was a shameful fate.¹⁴ Thus, this treatment could function as a punishment to signify the disposed person as a shameless creature, someone who had disregarded normal constraints and basic rules of life in society. This punishment was imposed on convicted criminals such as traitors and temple-robbers and people categorised as bad and dangerous as traitors etc. In cases, where people were executed and punished *in the same way as*, for example, a traitor, the disposal method was used as a powerful means to express the esteem in which the individual was held either by individuals or by the social and political group in power. This aspect will be discussed in more detail below.

Pre-Roman Greece had no institutionalised program of spectacles, where criminals were sent into the arena to die and to be finally disposed of carelessly (Kyle 1993; 1998, esp. 155-83; 243-8). Instead, ancient Greeks punished their wrong-doers (κακοποιον; οἱ κακούργοι) by exposing and dumping them in pits and water to communicate the worthlessness of these individuals. In Athens and Sparta, the *polis* authorities

¹²D. 25.1.58 (θηρίον), 43.83 (θηρία), 56.1.70 (ἄγριος), 58.49 (θηρίον). Cf. Din. 1.50 (θηρίον).

¹³D.L. 10.118; cf. IV.5.1.

¹⁴e.g. Hom. *Il.* 4.174; 21.320; *Od.* 1.161; 12.45-6; 14.135-6, but not 12.44-6 (where rather the animal like disposal of human corpses by Sirens was stressed rather than the fate of humans begiled by Sirens); E. *Hipp.* 1030-1; S. *OC* 1389-9, 1405, 1410; Th. 2.52.4; 7.75.1.

monopolised the power to punish their foes beyond death by legally sanctioning and carrying out the denial of burial of traitors and heinous criminals.¹⁵ At both *poleis*, a standard execution and punishment consisted of throwing (ἐμβάλλεσθαι) evil-doers into pits or ravines.¹⁶ In classical Athens, the most common punishment for anyone who wronged the people of Athens and was judged guilty of crimes against society was put to death by being cast into the Deadman's Pit. Alternatively the criminal's dead body was cast into this pit as a dead body that had been carried from prison (εἰς τὸ βάραθρον ἐμβάλλεσθαι), which was probably located outside the city, below a precipice of the rock of the Pnyx, in the corner between Town Hall and Long Wall.¹⁷ This punishment became so common a feature in Athens that βάραθος alluding to the place of execution and disposal, βάραθρον, meant 'human, who deserves to be cast into the barathron' or 'criminal'.¹⁸ The negative connotation of βάραθρον becomes also evident in the metaphorical use of this word in the sense of ruin, as given in LSJ.

An execution and disposal place similar to the Athenian βάραθρον was the Spartan Καίαδα".¹⁹ They were similar in their function, as they served both to punish men for the greatest crimes and enemies, in their location outside of the boundaries of the *polis*, and in their physical features, as they were both structures below the surface of the earth. The only significant difference was that the *barathron* was a hand-made pit, whereas the *Keadas* was a natural feature. Local oral tradition located the *Keadas* either near the village Parori in the district of Mistra or with an abyss at Mt. Tayjetos close to the village Trypi.²⁰ As a massive amount of human skeletons mostly of adults were found spread all over the cave of Trypia (cat. 194), Themelis and Pritchett suggested that it was the ancient *Keadas*. This interpretation is possible, but it remains to be seen as to whether this execution place was indeed used during the historical period. More specifically, it remains to be seen how the potsherds, which Themelis mentioned, are to be dated.

Another punishment of deprivation of honour consisted of prohibiting burial within the borders or being cast into the sea and other bodies of water.²¹ These methods held a different significance, as they were mainly applied to a specific kind of wrongdoers, namely to temple-robbers, traitors, pirates and suicides. As the best historical evidence for the treatment of convicted temple-robbers comes from Attica, I will base my discussion on it. Temple-robbers and their like were denied the individual's right to

¹⁵*Athens: X. Hell.* 1.7.20

¹⁶e.g. Zen. 6.17 (bones of Dionysius the Younger, tyrant of Sicily)

¹⁷*Barathron*: e.g. Ar. Eq. 1362; Pl. 431; Pl. Gorg. 516D; X. Hell. 1.7.20. Location: Roger 1938, 254b. Cf. Mahaffy 1883, 266 with n. 1; Garland 1985, 95.

¹⁸e.g. Lucianus, Pseudol. 17. Cf. Ar. Pl. 431.

¹⁹*Function*: Th. 1.134.4; Th. 4.80.4; Str. 5.3.6; 8.5.7; Paus. 4.18.4-7.

²⁰Papachatzis 1979, 71-2 n. 3; Themelis 1982, 183; Pritchett 1985, 58-60.

²¹Cf. Cantarella 1991, 91-105; Parker 1996, 43-7; .

burial by throwing their corpses into the sea (καταποντίζειν; καταποντόειν) or down a precipice (κατακρημνίζειν).²² Another punitive measure taken against the corpses was throwing them (ἐκβάλλειν) beyond the boundaries of the community and political and military Leagues they wronged; this meant in most of the cases outside of Attica, but occasionally also beyond the boundaries of the Athenian League.²³ Whenever a person died outside of the boundaries of the community, non-accordance of the honour of burial and close to the community did not involve the formal disposal of the corpse, but abandonment.²⁴ In contrast to disposal in water, which affords quick and effective removal, corpses cast beyond the boundaries of a community could be buried discreetly by the relatives.²⁵ If not, they were de facto recycled by scavengers, like those flung into the sea.²⁶ The surviving evidence also suggests that the bodies of suicides were disposed of outside of the boundaries of the social community. According to the law of Demonassa, suicides had to be thrown unburied over the borders in Kypros.²⁷ Plato, in his *Laws*, laid down that suicides should be formally punished 'for lack of manliness' by being buried, but in a solitary and unmarked grave on the boundaries between the twelve districts, that is in the darkness of anonymity on a piece of land falling outside the ordered, social world.²⁸ That regulations in Thebes are less explicit, but the denial of receiving any honour may point to the same direction. Suicides also flung themselves into the sea, in particular in mythical times and into precipices.²⁹ This method of extinguishing one's life seems to have been restricted to manly men; mythical female figures and effeminate men preferred to hang themselves with a rope.³⁰

The above discussed disposal modes differ in one important aspect: whereas the disposal in the sea was an ultimate disposal practice, disposal beyond the boundaries might have been followed by secondary de facto disposal of the corpse or the bones.

²²Diod. 16.25.2 (temple-robbers; sea (?)); 16 35.6 (as temple-robbers; sea); Aeschin. *Emb.* 142 (temple-robbers; over cliff); D. *Fleg.* 327 (temple-robbers (?); precipice); Isoc. 5 115 (pirates; sea); D. 25.166 (pirates; sea). Cf. Theopomp. *fr.* 96 (Jacoby; political enemy); III.1.2 (for this disposal method in general); Donderer 1991-2 (Roman customs); Kyle 1998, 19, 131-2, 213-28, 251-2 (Roman customs); Barber 1988, 30, 36, 44, 74 (Russian/Slavian customs).

²³*Attica*: e.g. X. *Hell.* 1.7.22 (traitors, temple-robbers); Th. 1.126 11-2 (treason); Pl. *Lg.* 873B (murder of kinsfolk); Lyc. *Leocr.* 113-4; Hyperid. *pro Lyc.* 20; Plu. *Phoc.* 37.2-3 (enemy). Cf. Graf 1978, 69 n. 54. *Second Athenian League*: e.g. SIG³ 147.61 (subverters).

²⁴The corpse of the Spartan Archidamos III, for example, who died during a war in Tarentum was not recovered from the battlefield and 'was not accorded the honour of burial' (Ath. 536D).

²⁵*Themistokles*: Th. 1.138.6. Cf. Plu. *Th.* 22.4). *Phocion*: Plu. *Phoc.* 38.1.

²⁶*Fishes such as red mullet and dogfish consuming human flesh*: Henderson 1975, 193, no. 417; Parker 1996, 360 with n. 17.

²⁷D. 8.64.3. Cf. Aeschin. *ag. Ctes.* 244; Plu. *Them.* 22.2; Kyle 1998, 131-2 (Roman procedure).

²⁸Pl. *Lg.* 9.873D, 874B. Cf. Bremmer 1983, 67.

²⁹*Sea*: e.g. Evenos, who threw himself into the river, which was called Evenos after him (Ps.-Apollod. *Bib.* 1.7.8); Aegeus, the father of Theseus, threw himself into the sea, which was called after him Αἰγαῖον πέλαγος or simply τὸ Αἰγαῖον (e.g. Stat. *Theb.* 12 625-6; cf. Herter 1973, 1144-6). *Precipice*: e.g. Paus. 10.2.4.

³⁰*Gender specific suicide methods*: Lorau 1987.

Both disposal modes have also two crucial aspects in common: They both exclude the physical remains of disgraced people from human habitation and remove them from sight. Thus, they recall the punishments of ostracism and prohibitions for entering sanctuaries and *agorai*, even though they were imposed on living members.³¹ The disposal of items and people into the sea involved, as I have argued under III.1.5, the aspect of 'riddance'. Thus, it may be concluded that the disposal methods under discussion aimed, at least partly, also at denying the physical existence of these shameful persons and at wiping out the social memory of them. In any case, the treatment of the bodies of temple-robbers and suicides casts light on the understanding of temple-robbing and suicide as particularly abominable acts against the state, the community.

A third mode of symbolic rejection and humiliation of malefactors beyond death consisted of exposing the dead corpse to carrion animals or the elements within the boundaries of a community. The best known example of this punishment is Kreon's order to leave Polyneikes' body on the plain, that is within the boundaries.³² A historic case is documented by Plutarchos. He stated that according to one version of the story, Demosthenes and Nikias were put to death by orders of the Syrakusans. The enemies were cast out of the prison door and laid there in plain sight of all that craved the spectacle (Plu. *Nic.* 28.5). Another case of this disposal method may have occurred when the corpse of Olympia was cast out without burial by order of Kasander (Diod. 17.118.2). If so, this ultimate disposal mode was imposed not only on political enemies, but also against a hated dynast. Exposure to carrion animals is similar to throwing corpses into the sea and beyond the boundaries, if no burial was arranged by the relatives of malefactors, as the human body was scavenged and, thus, de facto recycled by animals. It differs, however, also significantly in that the punitive, public violence was acted against malefactors within the boundaries of the community and thus permanently on display.

All three modes of disposal were used for confirming and constructing social hierarchy. The symbolism of these disposal methods, often accompanied with that of corpse abuse, was particularly effectively played with, whenever ancient Greeks wanted to make a statement about the esteem in which captive and military enemies were held. Such a case is documented by Herodotos (Hdt. 7.133), who said that Darios sent diplomats to demand earth from Sparta and Athens and that the demanders were cast into the Deadman's Pit in Athens and into a well in Sparta and bidden to carry hence earth and water to the king. Within the Greek frame of reference, these measures

³¹*Ban and out of sight*: e.g. Pl. *Gorg.* 516D. *Exclusion from public places*: app. E, s.v. *agorai*.

³²*Cf. Roman examples*: Kyle 1998, 19, 251.

expressed unmistakably that the Persian diplomats were not better than a βάραθος. This was also used at Sicily. The Syracusans, were meant to insult publicly Philistros (ἐφύβριζειν) beyond death. They achieved this goal by dragging the corpse of Philistros through the whole city and throwing him into the stone quarry, after a period of corpse abuse.³³

To conclude, death penalty and, more important, denial of burial were punitive measures undertaken against all sorts of public enemies, including temple-robbers, traitors, tyrants, captive enemies, foreign soldiers, rebellions but also suicides. The ultimate insult and humiliation of denial of burial was socially acceptable, if legalised by *polis* authorities in order to protect the security and rights of citizens or if imposed on wrongdoers by public fury also, as in the case of Philistros.³⁴ However, denial of burial was considered a horrendous crime and an expression of terror, if committed by oligarchs and tyrants.³⁵ Disposal methods aiming at hiding forever away a corpse or displaying it unburied as well as allowing it to be scavenged by carrion animals made visible the understanding of people, who had violated the fundamental social principles, socially speaking, as non-persons or animal like. Unburied corpses of public enemies were not considered polluting, I argue, because these people were held to have lost their honour, in that they acted beyond the limits of human society and customs, thus making them non-human and animal-like.³⁶

The second phenomenon I shall discuss in more detail is the secondary disposal of physical remains of the dead.³⁷ The 'indestructible' remains of those long dead were dug up with the intention to transfer them somewhere else and either to bury them carefully for a second time or to throw their physical remains out to get rid of them.³⁸ Whereas the former may be called secondary burial, reburial, or in my framework, secondary de facto disposal, the latter may be termed secondary disposal of the dead. Secondary de facto disposal of bones occurred frequently with bones of heroes and heroines involving transfer from one location to another, and were initiated mostly by archaic city-states. The physical remains of heroes and heroines used to be conspicuously buried in public locations.³⁹ One of the thirteen known incidents of bone reburial is the reburial of the

³³Plu. Dion. 35.5-7. Cf. Diod. 16.16.4.

³⁴Law against temple robbers, traitors and subverters: e.g. Diod. 16.25.2, Aeschin. Emb. 142, D. Fleg. 327; X. Hell. 1.7.22; Th. 1 138.6, probably also Lys. Paristoph. 7. Sentence for enemy: Plu. Nic. 28.5. Public fury: e.g. Nic.Dam. fr. 60 (Jacoby). Cf. Parker 1996, 45 n. 47.

³⁵Oligarchic brutality: e.g. Theopomp. fr. 96 (Jacoby); Lys. ag. Eratosth. 21. Tyrant's terror: e.g. Theopomp. fr. 227 (Jacoby; ap. Ath. 442F-443A). Cf. Parker 1996, 45 n. 47.

³⁶Corpses of public enemies: e.g. Parker 1996, 42, 46. Loss of honour: Parker 1996, 46.

³⁷Cf. Mycenaean world: Wells 1990, 135-6; Sourvinou-Inwood 1995, 93-4.

³⁸Quality of bones: Pl. Phdr. 80D. Secondary cremation vs. secondary disposal: e.g. Garland 1982, 131 n. 29; Dusenbery 1998a, 11.

³⁹e.g. Orestes in the agora and Agiads and Eurypontids separately in other public locations (Paus.

remains of Orestes in Sparta on the advice of the Oracle at Delphi around the middle of the sixth century B.C.⁴⁰ Boedeker's excellent study showed that the translation of Orestes' bones from Tegea to Sparta had many meanings and served various purposes.⁴¹ To start with the obvious, it brought an old king back home. Then, the importation of Orestes served a socio-political purpose of supporting the spirit of the constitutional reforms and the ideology of the *polis* of equals. Orestes had the power to transcend family claims, because he belonged to no family. By unifying the internal political struggles, Orestes established Sparta's military prowess. Lastly, the story of the recovery of the bones of Orestes seems to have served a particular purpose in the work of Herodotos, Boedeker argued; it functioned as Herodotos' way of explaining Lakonian superiority in the time of Kroesus and to contrast Spartan *eunomia* with Athenian *stasis*. Another famous example of reburial of a hero occurred when the bones of Theseus were brought from Skyros to the newly constituted Theseion at Athens in 475 B.C..⁴² As with the bones of Orestes, this reburial was advised by the Oracle and was politically and militarily motivated. The reburial of both heroes secured the protective powers for Sparta and Athens respectively and may have played a crucial role in the foundation of their cults, as Pausanias (3.3.5-8) assumed.⁴³ There is, however, also a major contrast between both stories, as Kimon's political career gained much from the secondary *de facto* disposal of Theseus' bones. In fact, McCauley (1999, 90-1) could show convincingly that the transfer of the hero's bones played a major rôle in manipulating the collective Athenian memory of his father. The utilisation of heroic protective powers for the *polis* and its institutions has already been discussed in the context of the *agora* (IV.4.3-4), albeit not in the context of reburial. Here, graves regarded as heroic graves were not pulled down and removed like all other graves for the creation of *agorai*, but remained at their places to protect the *agora* and to contribute to the expression of *polis* identity and institutions. Thus, in contrast to secondary burial, there was no spatial transfer involved in the selection of a tomb for use by a hero tomb.

3.12.8; 3.14.2 *Secondary burial in modern Greece*: Cullen 1999, 165, 166 n. 5.

⁴⁰Hdt. 1.66-8 Paus. 3.3.5-8. *Orestes for Sparta*: Paus. 2.18.6.

⁴¹Boedeker 1998 (with other examples of reburial practices of heroes in the context of the emerge of the city-states). Cf. McCauley 1999, 85-90.

⁴²Paus. 3.3.5-8. Cf. Nilsson 1940, 19; Lippohs 1995, 55-7 (with references); Holscher 1998, 87; McCauley 1999, 87-8, 90-6.

⁴³Cf. Pfisterer 1909, 76-7, 198-9 (antiquity); Geary 1986 (Christianity). The location of cemeteries at strategically important and vulnerable points either close to the main city gate as in Athens after the Persian wars, Eretria and Thasos or along the main streets leading towards the main gate as in the Western colonies is striking (*Keramieis*: Holscher 1998, 70-1. *Eretrian cemetery next to the West-gate*: Bérard 1980, 229-31; Lang 1996, 285-91. *Thasos*: Hitzmann 1994, 5-7. *Western colonies*: Di Vita 1986, 398). As Holscher (1998, 69-3) pointed out, the city-gates as transitional points were carefully protected not only by means of physical fortifications, but also with the aid of the protective powers of gods and heroes. Owing to significant location of some cemeteries I wonder whether humans were also regarded in some poleis, including Athens, Eretria and most of the Greek colonies in Italy and Sicily, as capable of protecting their community from unwanted enemies.

Reburials of human bones are literarily documented for Phokion and archaeologically in the necropolis S near Palaiopolis, Samothrake, after the extensively used small burial place of less than 300 m² was levelled with earth to be of further use as a cemetery.⁴⁴ These levelling practices may have had the purpose either to allow the continued use of the cemetery without too much disturbance of previous burials, as in the case of the Kerameikos (cf. IV.5 3). Alternatively, it may have been practised to mark the transition from cremation to inhumations, since the levelling coincided with this change. If practical reasons indeed prevailed, they were not at all successful, because diggers preparing to install inhumation burials dug through the earth to the cremation vessels. In a considerable number of cases, they collected the unearthed vessels and placed them either in little compartments made for them or in holes covered with a fragment of tile or other ceramic (Dusenbery 1998b, 1169-73). Such a careful treatment did not receive all unearthed bones and vessels, since a considerable number of them were found in the fill of necropolis S (Dusenbery 1998a, 8).

Actions leading to the removal of entire burial places have already been discussed in the context of the establishment of *agorai* in terms of the priority of the *koinon* over the individual and within the framework of Elias as first steps towards the monopolisation of political and social power and control of the *polis* authorities (IV.2.4). Probably, the most prominent cases of mass-reburial occurred at Delos in the so-called two purifications of Delos. The first purification was carried out by order of Peisistratos in the second half of the sixth century and included only those burials in sight of the sanctuary. In the second purifications of Delos in 426 B.C., which went hand in hand with the restoration of the festival for Apollo and Artemis and may be linked to the end of the plague in Athens, the bones and funerary furnishing, which had remained from the archaic purification, were exhumed, removed and deposited together with considerable care in a mass grave at the east coast of Rheneia, which is closest to Delos (cat. 104). For this secondary de facto disposal of human remains, the identity and social status of the dead individuals was unimportant, since these graves were all the same in one significant aspect: they were all considered disturbing and incompatible with the sacred. Having in mind that these graves were considered 'matters out of place' by the Athenian authorities, it is noteworthy that the bones and funerary implements were not carelessly disposed of without burial rites, but got, it seems, a minimal secondary burial within an enclosed area.

Greek legend, law and practice showed that at the other extreme, the physical remains of dead people were exhumed with the view to dispose them carelessly (ἐκβάλλειν) and to

⁴⁴Plu. *Phoc.* 37.3-38, 1; Dusenbery 1998a, 8-9.

deny any further burial. These actions would have been horrendous crimes if committed against decent people in normal society, but were accepted when imposed on the remains of disrespectful and non-loved ones (cf. Hdt. 5.67). Secondary (de facto) disposal of physical remains was directed against individuals or members of a family, but also against a larger number of graves. Digging up and casting out dead members of a family was reported, for instance, in connection with the Athenian Alkmeonidai and the Kypselid family at Corinth.⁴⁵ In the case of the Alkmeonidai, a curse for their religious crime legitimised exiling the living member, then, digging up and casting out the bones of their dead. The exhumation of the bones of the ancestors of Kypselid tyrants was but one action that took place, when the last of the Kypselid tyrants at Corinth was killed. The belated denial of further burial went hand in hand with the extinction of this family, the confiscation of the property and the denial of burial for the last Kypselid tyrant. Thus, at Athens and Corinth, the exhumation of the physical remains displayed and made public the detestable nature of the dead and made them equal to all those traitors and heinous criminals who were denied burial.

To be finally disposed of without receiving any honour (ἐκβάλλεσθαι; ἄταφον ῥίπτεσθαι) was considered a shameful and an animal-like fate by the majority of ancient Greeks. This could occur both as a primary or as a secondary disposal practice, when the bones were exhumed and thrown away without the intention to rebury them. Such disposal practices were restricted to children and perhaps also marginal humans such as slaves and women at least in the Classical period as well as public enemies and victims of tyrant's terror or oligarchic brutality. The denial of burial to different social groups was differently motivated. Whereas the careless disposal of children, for example, was due to their understanding as marginal beings and, socially speaking, their insignificant and invisible existence. However, the denial of burial for foes, threats, criminals, non-loved ones and enemies was a post-mortem insult and punishment, like the mutilation of corpses or being thrown out naked. Burial or disposal over the boundaries (ἐκβάλλειν) or into the sea (καταποντίζειν) made persons invisible and placed them outside of the community, I argued. Therefore, whenever offenders were punished by being cast into the sea or devoured by animals, I argue, it seems reasonable to assume that these modes of disposal were aimed at extinguishing the social memory of wrongdoers.

Minimal burial and denial of burial was socially acceptable when imposed on liminal humans and convicted evil-doers. In nearly all other cases, it was considered by the

⁴⁵*Alkmeonidai*: e.g. Th. 1.126.12 (ἐκβάλλειν); Plut. Sol. 12. *Kypselids*: e.g. Nic.Dam. fr. 60 (FGRHist). Cf. Kyle 1998, 150 n. 58.

majority of the Greek society as an unjust rejection of the individual's right of burial and a socially unacceptable and horrendous crime, typical for all kinds of non-humans such as Sirens, tyrants and oligarchs. However, the Cynics, a minority group, distinguished themselves from mainstream attitudes in as far as they did not regard disposal like an animal and as a source of food for animals shameful and threatening, because they interpreted these modes of disposal within their philosophical frame of reference. In particular Diogenes stressed the positive aspects of such as fate, namely provision of food for other creatures. As he was said to have made provisions that his corpse would serve as a source of food for animals, Diogenes' behaviour can be described within my framework as aiming at de facto recycling processes. The provision to feed his corpse to animals seems to have been the most extreme example of making use of items and substances that were commonly held useless, less extreme examples of de facto recycling practices, I discussed under II.3.4.

APPENDIX G. GREEK TEXTS

In this appendix, a representative selection of Greek texts are listed which are discussed in this thesis.¹ It is divided into three subsections. At G.1, epigraphical and literary references to the topics dirt and waste disposal regulations are listed (chapter 2). At G.2 the relevant sources for the exploration of waste disposal are listed, while at G.3 those for the discussion of recycling practices are listed. In order to make this appendix easy to use, in each section the ancient authors are listed in alphabetical order. The edition of the texts printed is shown in brackets.

G.1 DIRT AND WASTE (incl. app. B-E)

Aeschylides (ap. Aelian NA 16 32)

κύτισον δὲ καὶ θρία ἐμβάλλειν, καὶ τῆς ἐλαίας τὰ ρεύσαντα φύλλα, καὶ μέντοι καὶ ὀσπρίων ἄχυρα ποικίλων, παραοπείρειν δὲ καὶ ἀκάνθας, καὶ ἐκείνοις ἀγαθὸν εἶναι ταῦτα δεῖπνον.

Antiph. fr. 89 (Kock; Ath. 262C)

ὄραν τε κείμενα ἄμητας ἡμιβρώτας ὀρνίθειά τε, ὧν οὐδὲ λειφθέντων θέμις δούλω φαγεῖν, ὡς φασιν αἱ γυναῖκες.

Ar. Ach. 68-72 (Rogers)

ΠΡΕΣΒΥΤΗΣ

καὶ δῆτ' ἐτρυχόμεσθα τῶν Καυστρίων πεδίων ὀδοιπλανοῦντες ἐσκηνημένοι, ἐφ' ἄρμαμαξῶν μαλθακῶς κατακείμενοι, ἀπολλύμενοι.

ΔΙΚΑΙΟΠΟΛΙΣ

σφόδρα γ' ἄρ' ἐσφζόμην ἐγὼ παρὰ τὴν ἔπαλξιν ἐν φορυτῷ κατακείμενος.

Ar. Ach. 401-4 (Rogers)

(...) κἄν ἐκβάλῃ

σκευός τι κατὰ τὴν οἰκίαν πλανωμένη,

άνηρ ἐρωτᾷ, "τῷ κατεαγεν ἡ χύτρα;

οὐκ ἔσθ' ὅπως οὐ τῷ Κορινθίῳ ξένῳ."

Ar fr. 273 (Kock; ap D.L. 8.34)

μηδὲ γεύεσθ' ἄττ' ἂν ἐντος τῆς τραπέζης καταπέση.

¹The editions of the primary texts used here are listed separately in the bibliography. The abbreviations are according to LSJ.

Ar. fr 490 (Kassel & Austin)

ὡσπερ ἐν Καλλιππίδῃ
ἐπὶ τοῦ κορήματος καθέζομαι χαμαί.

Ar. Nu. 42-55 (Rogers)

εἶθ' ὄφελ' ἢ προμνήστρι' ἀπολέσθαι κακῶς,
ἦτις με γῆμ' ἐπήρε τὴν σὴν μητέρα·
έμοι γὰρ ἦν ἄγροικος ἠδιστος β'ος,
εὐρωτιῶν, ἀκόρητος, εἰκῆ κείμενος,
βρύων μελίτταις καὶ προβάτοις καὶ στεμφύλοις.
ἔπειτ' ἔγνημα Μεγακλέους τοῦ Μεγακλέους
ἀδελφιδῆν ἄγροικος ὦν ἐξ ἄστεως,
σεμνήν, τρυφῶσαν, ἐγκεκοισυρωμένην.
ταύτην ὅτ' ἐγάμουν, συγκατεκλινόμην ἐγὼ
ὄζων τρυγός, τρασιᾶς, ἐρίων περιουσίας,
ἢ δ' αὖ μύρου, κρόκου, καταγλωττισμάτων,
δαπάνης, λαφυγμοῦ, Κωλιάδος, Γενετυλλίδος.
οὐ μὴν ἐρῶ γ' ὡς ἀργός ἦν, ἀλλ' ἐσπάθα.
ἐγὼ δ' ἂν αὐτῇ θοίμάτιον δεικνύς τοδὶ
πρόφασιν ἔφασκον, "ὦ γύναι, λίαν σπαθᾶς."

Agist. Ath 50-51.1 (Rackham)

κληροῦνται δὲ καὶ ἱερῶν ἐπισκευασταὶ δέκα ἄδρες, οἱ λαμβάνοντες
τριάκοντα μνάς παρὰ τῶν ἀποδεκτῶν ἐπισκευάζουσιν τὰ μάλιστα
δεόμενα τῶν ἱερῶν καὶ ἄστυνόμοι δέκα· τούτων δὲ ἓ μὲν
ἄρχουσιν ἐν Πειραιεῖ πέντε δ' ἐν ἄστει, καὶ τὰς τε αὐλητρίδας καὶ
τὰς ψαλτρίδας καὶ τὰς κιθαρστρίδας οὗτοι σκοποῦσιν ὅπως μὴ
πλείονος ἢ δυεῖν δραχμαῖς μισθωθῆσονται, κἄν πλείους τὴν
αὐτὴν σπουδᾶσσι λαβεῖν οὗτοι διακληροῦσι καὶ τῷ
λαχόντι μισθοῦσιν. καὶ ὅπως τῶν κοπρολόγων μηδεὶς
ἐντὸς ἑἰ σταδίων τοῦ τείχους καταβαλεῖ κόπρον
ἐπιμελοῦνται, καὶ τὰς ὁδοὺς κωλύουσι κατοικοδομεῖν καὶ
δρυφάκτους ὑπὲρ τῶν ὁδῶν ὑπερτείνειν καὶ ὀχετοὺς
μετεώρους εἰς τὴν ὁδὸν ἔκρουν ἔχοντας ποιεῖν καὶ τὰς
θυρίδας εἰς τὴν ὁδὸν ἀνοίγειν· καὶ τοὺς ἐν ταῖς ὁδοῖς
ἀπογιγνομένους ἀναιροῦσιν, ἔχοντες δημοσίους ὑπηρέτας.

Κληροῦνται δὲ καὶ ἀγορανόμοι ἰ, πέντε μὲν εἰς Περαιέα, ἑ δ' εἰς ἄστν. τούτοις δε ὑπὸ τῶν νόμων προστέτακτα τῶν ὠνίων ἐπιμελεῖσθαι πάντων, ὅπως καθαρὰ καὶ ἀκίβδηλα πωλῆται.

D. 24.60 (Murray)

οἱ μὴ καθαρᾶς χεῖρας ἔχοντες, εἰσιόντες δ' εἰς τὴν ἀγοράν, ἀδικοῦσιν.

D. 25.49 (Murray)

(...) ὅπου γὰρ Ἀριστογείτων ἐπὶ τοῖς ὠμολογημένοις ἀδικήμασιν κρίνεται καὶ οὐκ ἀπόλωλε πάλαι, τί χρῆ ποιεῖν ἢ λέγειν; ὃς εἰς τοῦθ' ἤκει πονηρίας, ὥστ' ἐνδεδειγμένος ἤδη βοῶν, συκοφαντῶν, ἀπειλῶν οὐκ ἐπαύετο, οἷς μὲν ὑμεῖς τὰ μέγιστ' ἐνεχειρίζετε στρατηγοῖς, ὅτι αὐτῷ ἀργύριον αἰτοῦντι οὐκ ἔδοσαν, οὐδὲ τῶν κοπρῶνων ἄν ἐπιστάτας ἐλέσθαι φάσκων, (...)

D. 55.22, 27-8 (Murray)

Οὐκοῦν δεινόν, ὧ ἄνδρες δικασταί, τούτους μὲν μηδὲν ἐγκαλεῖν μοι τοσαῦτα βεβλαμμένους, μηδ' ἄλλον μηδένα τῶν ἠτυχηκότων, ἀλλὰ τὴν τύχην στέργειν, τουτονὶ δὲ συκοφαντεῖν; ὃν ὅτι μὲν αὐτὸς ἐξημάρτηκε, πρῶτον μὲν ὁδὸν στενοτέραν ποιήσας, εξαγαγὼν ἔξω τὴν αἵμασιάν, ἵνα τὰ δένδρα τῆς ὁδοῦ ποιήσειεν εἴσω, ἔπειτα δὲ τὸν χλῆδον ἐκβαλὼν εἰς τὴν ὁδόν, ἐξ ὧν ὑψηλοτέραν τὴν αὐτὴν καὶ στενοτέραν πεποιῆσθαι συμβέβηκεν, (...) ἵνα δ' εἰδῆθ' ὅτι καὶ τὸν χλῆδον εἰς τὴν ὁδὸν ἐκβεβλήκασιν, καὶ τὴν αἵμασιαν προαγαγόντες στενοτέραν τὴν ὁδὸν πεποιήκασιν, (...) Εἶτα τούτων ἀναισχυντότεροι γένοιντ' ἄν ἄνθρωποι, ἢ περιφανέστερον συκοφαντοῦντες, οἵτινες αὐτοὶ τὴν αἵμασιαν προαγαγόντες καὶ τὴν ὁδὸν ἀνακεχωκότες ἑτέροις βλάβης δικάζοντα, καὶ ταῦτα χιλίων δραχμῶν ἀτίμητον, οἷ γ' οὐδε πενήκοντα δραχμῶν τὸ παράπαν ἅπαντ' ἀπολωλέκασιν; καίτοι σκοπεῖτ' ὧ ἄνδρες δικασταί, πόσους ὑπὸ τῶν ὑδάτων ἐν τοῖς ἀγροῖς βεβλάφθαι συμβέβηκε, τὰ μὲ Ἐλευσῖνι, τὰ δ' ἐν τοῖς ἄλλοις τόποις. ἀλλ' οὐ δήπου τούτων, ὧ γῆ καὶ θεοὶ, παρὰ τῶν γειτόνων ἕκαστος ἀξιώσει τὰς βλάβας κομίζεσθαι.

E. fr. 664 (Nauck; ap. Ath. 427E)

πεσὸν δέ νιν λέληθεν οὐδεν ἐκ χερὸς, ἀλλ' εὐθύς αὐδᾶ ἄτῳ κορινθίῳ
ξένῳ'.

Epicr. fr. 5 4-9 (Kock; ap. Ath. 262D)

(...) ὀρᾶν τε κείμενα ἄμητας ἡμιβρώτας ὀρνίθειά τε, ὧν οὐδὲ
λειφθέντων θέμις δούλῳ φαγεῖν, ὡς φασιν αἱ γυναῖκες. ὁ δε
χολᾶν ποιεῖ, γάστριν καλοῦσι καὶ λάμυρον ὃς ἂν φάγη ἡμῶν τι
τούτων.

Hermipp. fr. 47.5-10 (Kock; Ath. 487E F)

ράβδον δ' ὄψει (φησί) τὴν κοτταβικὴν
ἐν τοῖς ἀχύροισι κυλινδομένην,
Μανῆς δ' οὐδὲν λατάγων αἴει,
τὴν δὲ τάλαιναν πλάστιγγ' ἂν ἴδοις
παρὰ τὸν στοφέα τῆς κηπαίας
ἐν τοῖσι κορήμασιν οὔσαν.

IG IV, 73A 7-10

.....πο]ρτὶ στέγαι μὲ πορ-
τέμεν αἰ μὲ δέκα πο[.....
.....μέτε ἰπνιδνα μέτε κο-
πριδνα μέτε ρ[-----

IG II² 380.25-8 (= SIG³ 313.34-40; Prout & Kolbe 1902, 61-2)

(...) ὅπως δ' ἂν καὶ εἰς τὸ[ν] λο[ιπὸν] χρόνον
ὡς βέλτιστ[α ἢ κα]τ[εσκευασμέν]α τὰ ἐν
τῇ ἀγο[ρᾷ] τῇ [ἐ]μ [Πε]ι[ραιοῖ] καὶ τὰ [ἐ]ν ταῖ-
ς ὁδοῖς [μ]ῆ [ἐ]ξ[εῖναι] [μηδενὶ μήτε] χοῦν κα-
[ταβά]λλειν μήτε ἄλλ[ο μηδὲν μηδὲ] κοπρῶ-
[σαι μητ' ἐ]ν τῇ ἀγορᾷ μήτ' ἐν ταῖς ὁδοῖς
[μηδαμοῦ. (...)]

IG XI.2.146.76-7 (Delos; 301 B C)

ὅτε ὁ βασιλεὺς ἐξέπλευσεν,
τὸγ κόπρον ἐξενέγκασιν ἐκ τοῦ ἱεροῦ μισθωτοῖς ΔΔ⁺⁺

OGIS 482.37-40, 60-5

[----- τοὺς δ' ἐ]κβεβλη[κότας τὸν χοῦν οἱ ἀμφοδάρχαι] ἀναγκα|ζέτωσαν ἀνακαθαίρειν τὸν τ]όπον, καθ' ἃ | [ὁ νόμος προστάσσει· εἰ δὲ μ]ή, προσαγγελ|λέτωσαν τοῖς ἀστύνομοις.] (...)
 (...) ἐάν τινες ἐν ταῖς | ὁδοῖς χοῦν ὀρύσσωσιν ἢ λίθους ἢ πηλὸν ποιῶσιν ἢ πλίνθους ἔλκωσιν ἢ μετεώρους | ὀχετοὺς ποιῶσιν, κωλυέτωσαν αὐτοὺς | οἱ ἀμφοδάρχαι. ἐάν δὲ μὴ πείθωνται, ἐ|παν[γ]ελλέτωσαν τοῖς ἀστύνομοις.

Plut. Mor 811A-B (Fowler)

(...) Πολιτείας δ' οἱ μὲν εἰς ἅπαν ἐνδύονται μέρος, ὥσπερ ὁ Κάτων, οὐδεμιᾶς ἀξιοῦντες εἰς δύναμιν ἀπολείπεσθαι φροντίδος οὐδ' ἐπιμελείας τὸν ἀγαθὸν πολίτην· καὶ τὸν Ἐπαμεινώνδαν ἐπαινοῦσιν, ὅτι φθόνῳ καὶ πρὸς ὕβριν ἀποδειχθεὶς **τέλμαρχος** ὑπὸ τῶν Θηβαίων οὐκ ἠμέλησεν, ἀλλ' εἰπὼν ὡς οὐ μόνον ἀρχὴ ἄνδρα δείκνυσιν ἀλλὰ καὶ ἀρχὴν ἀνήρ, εἰς μέγα καὶ σεμνον ἀξίωμα προήγαγε τὴν τελμαρχίαν, οὐδὲν οὔσαν πρότερον ἀλλ' ἢ **περὶ τοὺς στενωποὺς ἐκβολῆς κοπρίων καὶ ρευμάτων ἀποτροπῆς ἐπιμέλειάν** τινά. (...)

Poseid. fr 17 (FGrHist; ap Ath. 540 B-C)

ἐν δὲ τῇ τεσσαρεσκαίδεκάτῃ περὶ τοῦ ὁμωνύμου αὐτοῦ Ἀντιόχου λέγων τοῦ ἐπ' Ἀρσάκην εἰς Μηδιαν στρατεύσαντός φησιν ὅτι ὑποδοχὰς ἐποιεῖτο καθ' ἡμέραν ὀχλικὰς· ἐν αἷς χωρὶς τῶν ἀναλισκομένων καὶ **ἐκφατνιζομένων σωρευμάτων** ἕκαστος ἀπέφερε τῶν ἐστιατόρων ὀλομελῆ κρέα χερσαίων τε καὶ πτηνῶν καὶ θαλαττίων ζώων ἀδιαίρετα ἐσκευασμένα, ἅμαξαν πληρῶσαι δυνάμενα· καὶ μετὰ ταῦτα μελιπηκτων καὶ στεφάνων ἐκ σμύρνης καὶ λιβανωτοῦ σὺν ἀνδρομήκεσι λημνίσκων χρυσῶν πιλήμασιν πλήθη.

Semon. fr 7.2-6, 57-70 (West; Lloyd-Jones)

τὴν μὲν ἐκ σουοστανύτριχος,
 τῇ πάντ' ἀν' οἶκον βορβόρωι πεφυρμενα
 ἄκοσμα κείται καὶ κυλίνδεται χαμαί
 αὐτὴ δ' ἀλουτος ἀπλύτοις ἐν εἵμασιν
 ἐν κοπρηισιν ἡμένη παίνεται.
 (...)

τὴν δ' ἵππος ἀβρῆ χαιτέεσσ' ἐγείνατο,
 ἢ δούλι' ἔργα καὶ δύην περιτρέπει,
 κοῦτ' ἄν μύλης ψαύσειεν, οὔτε κόσκινον
 ἄρειεν, οὔτε κόπρον ἐξ οἴκου βάλοι,
 οὔτε πρὸς ἵπνον ἀσβόλην ἀλεομένη
 ἴζοιτ'. Ἀνάγκη δ' ἄνδρα ποιεῖται φίλον·
 λούται δὲ πάσης ἡμέρης ἄπο ρύπον
 δίς, ἄλλοτε τρίς, καὶ μύροις ἀλείφεται,
 αἰεὶ δὲ χαίτην ἐκτενισμένην φορεῖ
 βαθεῖαν, ἀνθέμοισιν ἐσκιασμένην.
 κᾶλὸν μὲν ὦν θέημα τοιαύτη γυνὴ
 ἄλλοισι, τῷ δ' ἔχοντι γίνεται κακόν,
 ἦν μή τις ἢ τύραννος ἢ σκηπτούχος ἦι,
 ὅστις τοιούτοις θυμὸν ἀγλαίζεται.

Semon. fr. 10A (West; Franyó & Gan 1981a)

καὶ μήτ' ἄλουτος γαυρία σύ, μήτ' ὕδωρ | θαύμαζε, μηδὲ [κο]υρία
 γενειάδα | μηδέ ρύπῳ χιτῶνος ἔντυε χροῶ.

SIG III³ 1171 (Lebena, Crete)

- Ἀσκληπιῶ | Πόπλιος Γράνιος | κατ' ἐπιταγήν.
- 5 ἐκ διετίας βήσσοντά με ἀδ[ιαλεί] πτωσ, ὥστε σάρκας ἐνπύου[ς
 καὶ] ἡμαγμένας δι' ὄλης ἡμέρας ἀ[πο] βάλλιν, ὁ θεὸς
 ἐπεδέξατο θερ[α] | πεῦσαι|
- 10 ἔδωκεν εὐζωμον νήστη τρώγειν, | εἶτα πεπερᾶτον Ἰταλικὸν
 πείνειν, | πάλιν ἄμυλον διὰ θερμοῦ ὕδατος, | εἶτα κονίαν ἀπὸ
 τῆς ἱερᾶς σποδοῦ | καὶ τοῦ ἱεροῦ ὕδατος, εἶτα ῥὸν καὶ |
 ῥητείνην, πάλιν πίσαν ὑγρᾶν, |
- 15 εἶτα εἶρην μετὰ μέλιτος, εἶτα μῆλον Κυδῶ[νιον κ]αὶ πετρίδα
 συνεψή [σαντι τὸ μὲν ἔψημα πείνειν, τὸ δὲ μῆλον | [τρώγειν,
 εἶτα τρώ-
- 20 γειν] σῦκα μετὰ σπο[δοῦ ἱερᾶς τῆς ἐκ τοῦ] βωμοῦ, ὅπου θύ[ουσι
 τῶ θεῶ.
 _ _]. ἀπὸ τ...ς ἐν τῷ δε[ξιῶ (?) _ _]ς πολὺ αἷμα _ _ | _ οὔντα
 [i]κέ[την _ _ | _ _]

Sokolowski 1962, no. 24 (Fridauros, Regulation concerning the Property of the Sanctuary, 2nd century B C)

----- AI -----

-----]σος ἰ[μὴ λυμαίνεῖν τὰν]
 [στοὰν τὰν ἱε]ρὰν ἐν [τῶι τεμένει, μηδὲ ἰδ'αι]
 [τοῖς ἱε]ροῖς σκεύεσσι χρῆσθαι ἰ τον δε ἄλον]-
 [τα τοῖ ἱε]ρο]μνάμονες δ[ικαζέσθω, εἰ δὲ μή,
 [αὐτοῖ ἀ]ποτεισάντω ἑκατ[ὸν δραχμὰς ἕκα -
 [στος, ἐμ]φανιζέσθω δὲ ὁ [παρατυγχάνων]
 [ἐπὶ τῶι ἡ]μίσσωι ἰ μηδὲ κόπρον μηδὲ σπο]-
 [δὸν ἐκβ]άλ]λειν ἐν τ[ῶι τεμένει ἰ ὁ δὲ ἐκβα]-
 [λὼν ἀ]ποτεισάτω πεντήκοντα δραχμὰς]
 [ἱε]ράς, ἐμ]φανιζέσθω δὲ ὁ βουλόμενος]
 [ἐπὶ τῶι ἡ]μίσσωι -----

Sokolowski 1962, no. 50 (Delos, sanctuary of the Nymphs, 5th century BC)

Μὴ πλύνεν ἐπὶ τὲν κρή[νε]ν
 μηδέν, μηδὲ κολυμ[βᾶν ἐν τ]-
 ῆι κρήνει, μηδὲ [βάλ]λ[εν] κ[α]-
 τὰ τὴν κρήν[εν κόπρον μηδ]-
 [έ τι ἄλλ]ο. ἐπ[ιζή]μια ἰ δραχμ-
 αὶ ἰ ἰ[ε]ρ[α]ί.

Sokolowski 1962, no. 53.1-10 (Delos, Regulations concerning the Property of the sanctuary of Dionysos and Leto, end of 3rd century B.C.)

Ἔδοξεν τῆι βουλῆι καὶ τῶι δήμωι ἰ
 Τηλεμνηστος Ἀριστείδου εἶ-
 πεν ἰ ὅπως εἰς λοιπὸν διαμέ[νε]ι]
 ὁ τόπος καθαρὸς ὦν ὁ π[ρὸς τῶι [Διο]-
 νύσωι καὶ μηθεὶς ἐμ[β]άλλει εἰς τὸν
 [ἀ]νακαθαρθέντα τόπον, μηδ' εἰς τὸ
 [τέ]μενος το τῆς Λητοῦς [μή τε κο]-
 [προν, μήτε σποδόν, μήτε [ἄλλο μη]-
 [θὲ]ν. δεδόχθαι τῆι βουλῆι καὶ τῶι δήμωι

Sokolowski 1962, no. 115A 26-31 (Kyrene 4th century BC)

αἶ κα ἐπὶ βωμῶι θύσῃ ἰαρήιον, ὅ τι μη νομος θύεν, τ[ο]

ποτιπίαμμα ἀφελεν ἀπο τῷ βωμῷ και ἀπολυ-
 ναι και τὸ ἄλλο λῦμα ἀνελεν ἐκ τῷ ἱαρῷ, και ταν ἴκ-
 νυν ἀπὸ τῷ βωμῷ και το πῦρ ἀφελεν ἐς καθαρὸν·
 και τόκα δὴ ἀπονιψάμενος, καθάρας το ἱαρὸν και
 ζαμίαν θύσας βοτὸν τελευν, τόκα δη θυέτω ἄς νόμ[ο ...]

Sokolowski 1969, no. 3 (IG I³ I, 4B; Németh 1993, 76-77; 485-479 B.C.)

- [τὰ χαλκία τα ἐ]μ πόλει ἡόσοις χρῶνται : π[λ]έν ἡόσα
 [...δ...σεσεμ]ασμένοις : οἰκέμ[ασι ἐ]αμ παρ' ἐκάστ-
 [.....9....κα]τα τὸν πόλιν : γρά[φσα]σθαι : τὸς ταμί-
 [ας :: ἡόταν δρο]σι : τὰ ἱερά : ἡοι ἔ[νδο]ν : ἡιε[ρ]οργῶντ-]
 5 [ε]ς, μὲ παρηιστ]άναι : χύτραν : μεδὲ [...7...]αν μεδὲ
 [.....13.....] μεδὲ το πυρ : ἀν[.]εν· [ἐ]άν δε τις · τ-
 [ούτον τι δραι εἰ]δός : ἐχσεναι θ[οᾶ]ν : μέχ[ρι τρι]ον [ὀ]-
 [βελον τοισι τ]αμίαισι :: τὸς ἡιε[ρ]οργῶντα ς] μ[...5..]
 με[...7...]νεο : και το προ[...8....]ο β[ο]μο : [...5..]
 10 τοθεν : τ[ο ν]εὸ : ἐντὸς το Κ[εκροπ]ίο μεδ' ἀν]ὰ παν : τὸ ἡε-
 κατόμπ[εδ]ον : μεδ' ὄνθο[ν] : ἐγβαλεν· ἐάν δέ τις : τούτο-
 ν τι δρᾶ[ι εἰδός, ἐ]χσ[ε]ναι : θοαν [μέ]χρι τριον : ὀβελο-
 ν : τοισι ταμ[ί]αισι :: τὰς] ἡιερέα[ς] τὰς ἐμ πόλει : και τ-
 ἄς ζακόρος [μὲ ἡέχεν οἴ]κεμα ταμειον : ἐμ πόλει : μ-
 15 εδὲ ἡιπνε[ύεσθαι· ἐ]άν δέ τις τ]ούτον τι δραι · εὐθύ-
 νε[σθαι ἡεκατὸν] : δραχμ[ε]σι και] τὸς ταμίας : ἐάν ἐο-
 σ[ι εὐθύ]νεσθαι] ἡεκατὸν δραχμ[ε]σι ::] τα οἰκέματα
 [...τοι ἡεκατ]ομπέδοι : ἀνοίγεν · [το]ς ταμίας : μὲ ὀ-
 [λειζον τρι]ς τ]ο μενός] θεασθαι : τα[ς ἡέν]ας : ἐμέρας
 20 [τὰς πρὸ τε]ς νο]μενία[ς και τ]ει [δεκά]τει και τει εἰ-
 [κάδι ἡυπὲρ ἡέμ]ισυ : πα[ρ]όντα[ς] ἡὸς δ' ἂν λεί]πει · δυ-
 [ατὸς ὄν ἀπο]τίνε]ν : δύο δραχμ[α ἑ]κάστον· ἐσπρ]άττε-
 [ν δὲ τὸπ]ρῦ[τανιν· ᾶ]ν δε μέ, και ἰ] αὐτον κατα ταυτ'] εὐθ-
 ὑνεσθαι : φα[ί]νεν δε : τοπ[ρυτανιν τα ἀδικέ]ματα] το-
 25 [ι]ς ταμίαισι · τὰ ἐν τοι λί[θοι γεγραμμένα]
 vacat
 ταυτ' ἔδοχσεν : τοι δέ[μοι ἐ]πὶ Φ[ιλοκ]ρατος ἀρχοντ]-
 ος : τα ἐν τ ἰν λίθοι[ν τού]τ ἰν.

Sokolowski 1969, no. 9 (= IG I³ 982; Vari, Attica, 5th century B.C.)

Τὰ ντερ' ἔχ-

σο κλύζετ[ε]
καὶ τὸν ὄν-
θον νίζετε

Sokolowski 1969, n . 57 (Argos)

[‘Αλιαία ἔ]δοξε τελεί(αι) · ε[- - -
[- - - - -] μη(δ) ἴππεύεσθαι [μηδε - - -
[- - - - -] νεύεσθαι μηδὲ [- - -
[- ἐν τῷ ἱερῷ] ἔργαστήριον αἰ[- - -
[- - - - -]ν μηδὲ κόπρον ἐ[σβάλλειν, μηδὲ ξύ]-
[λα κόπτειν μ]ηδε κορ(μοὺς πλὰν ε)[ἴ τι εἰς τὸ δαμο]-
[σιον ἔργον ἦ] ἀμφὶ τὸ τοῦ Λυκεί[ου ἱερὸν - -
- - - στρατ]αγοὶ Κρίτω[ν - - -
- - -

Sokolowski 1969, no. 67.27-30 (Tegea, sanctuary of Hera 395-70 B.C.)

(...) : : τ]-
ὄς δαμιοργὸς τὸν κόπρον τὸν ἀπυδοσμ[... ἐξάγε]-
[ν] τῷ ἡεβδόμῳ τῷ Λεσχανασίῳ μενός · [εἰ δὲ μέ, δαρχ]-
[μὰ]ν ὀφλέν : : (...)

Sokolowski 1969, no. 78. 21 (Delphi, Amphyktonian inscription; 380/79 B.C.)

(...)[· ἐκ] τᾶς ἱερᾶς γᾶς κόπρον μὴ ἄγεν μηδεμίαν ν οἰκῆσιος· (...)

Sokolowski 1969, no. 97A.21-3. (Keos; 5th century B.C.)

(...) μὲ ὑποτιθέναι κύλικα ὑπο τῆγ [κλί]-
[ν]ην, μεδὲ τὸ ὕδωρ ἐκχῆν, μεδὲ τα καλλύ[σμα]-
τα φέρειν ἐπὶ τὸ σῆμα·

Sokolowski 1969, no. 108 (Paros 5th century B.C.)

Ὅς ἂν βάλ-
λην τὰ ἐκ-
[α]θάρματ-
[α] ἄνωθεν
τῆς ὁδοῦ, μ-
ίαν καὶ π-
εντήκον-
τα δραχμ-

[ἀ]ς ὀφελέ-
 [τ]ω τῶι θέ-
 [λ]οντι πρ-
 [ῆ]χ[σαι - -

Sokolowski 1969, no. 115 (Thasos, Garden of Herakles 4th century B C)

Ἐπὶ Λυσιστράτου [τοῦ Ἀἰσχρωνος ἄρχοντος - - - - -]
 ἐπὶ τοῖσδε ἐκδέδοται [ὁ κῆπος τῷ] Ἡρακλέος ὁ πρὸς τ[- - - ὁ ἀνα]-
 ραιρημένος τὸν κῆ[πον τὸ χωρ]ίον καθαρὸν παρέξει [τὸ
 παρὰ τὰς]
 πύλας, ὅπου ἡ κόπρος [ἐξεβάλλ]ετο· ἦν δέ τις ἐγβάλλη[ι
 ἐλεύθερος ἐς]
 τὸ χωρίον, εἶναι το ἄγγος τοῦ ἀναιρερημένου τὸν κῆπο[ν, ἦν τις
 τῶν]
 δούλ(ω)ν, μαστιγώσαντα ἀθῶιον εἶναι · ὅπως δὲ το χωρίον
 καθα[ρὸν]
 παρέχη, ἐπιμέλεσθαι τὸν ἀγορηνόμον καὶ τὸν ἱερέα τοῦ
 Ἄσκληπιοῦ τοὺς ἐκάστοτε ἐόντας · ἦν δὲ μὴ ἐπιμέλωνται
 ὀφείλεν αὐτοὺς τῆς ἡμέρης ἐκάστης ἡμιέκτον ἴρον τῶι
 Ἄσκληπιῶι · δικάζεσθαι δὲ τοὺς ἀπολόγους ὀφείλεν ·
 τὸν δὲ ἀναιρερημένον τῶ[ι ἰ]ρεῖ καὶ ἀγορηνόμωι ἕκτην ὀφείλεν
 τῆς ἡμέρης.

Thphr. Char 14 5 (Rust n & Cunningham)

καὶ πολλὰ φαγῶν τῆς νυκτὸς ἐπὶ θάκου ἀνίστασθαι <καὶ ἐπανιῶν
 νυστάξαι καὶ τὴν θύραν ἀλλογνοήσας> ὑπὸ κυνὸς τῆς τοῦ γείτονος
 δηχθῆναι.

Thphr Char 19 1-6 (R sten & Cunningham)

Ἔστι δὲ ἡ δυσχέρεια ἀθεραπευσία σώματος λύπης παρασκευαστική,
 ὁ δὲ δυσχερὴς τοιοῦτός τις, οἷος λέπραν ἔχων καὶ ἀλφὸν καὶ τοὺς
 ὄνυχας μεγάλους περιπατεῖν καὶ φῆσαι ταῦτα εἶναι αὐτῷ
 συγγενικὰ ἀρρωστήματα· (..) ἀμέλει δε δεινὸς καὶ ἔλκη ἔχειν ἐν
 τοῖς ἀντικνημίοις καὶ προσπταίσματα ἐν τοῖς δακτύλοις, καὶ μὴ
 θεραπεῦσαι ἀλλ' ἐᾶσαι θηριωθῆναι· καὶ τας μασχαλας δε θηριώδεις
 καὶ δασείας ἔχειν ἀχρι ἐπὶ πολὺ τῶν πλευρῶν, καὶ τοὺς ὀδόντας
 μέλανας καὶ ἐσθιομένους. [ὥστε δυσέντευκτος εἶναι καὶ ἀηδής.]
 καὶ τὰ τοιαῦτα· (...) προσλαλῶν ἀπορρίμτειν ἀπὸ τοῦ στόματος·

ἄμαπιὼν ἐρυγγάνειν. ἀναπόνιπτος ἐν τοῖς ἐμβάσι μετὰ τῆς γυναικὸς κοιμάσθαι· ελαιῶ σαπρῶ ἐν βαλανείῳ χρώμενος ὄζεσθαι.

X. Eq. 5.2 (Marchant)

ἀγαθὸν δὲ καὶ τὸ τετάχθαι τῷ ἵπποκόμῳ καθ' ἡμέραν τὴν κόπρον καὶ τὰ ὑποστρώματα τοῦ ἵππου ἐκφέρειν εἰς ἓν χωρὶον.

X. Oec. 18.2 (Pomeroy)

καὶ ἀκροτομοίης δ' ἄν, ἔφη, ἢ παρὰ γῆν τέμνοις; Ἄν μὲν βραχὺς ἢ ὁ κάλαμος τοῦ σίτου, ἔγωγ', ἔφην, κάτωθεν ἂν τέμνοιμ, ἵνα ἱκανὰ τὰ ἄχυρα μᾶλλον γίγνηται· ἐὰν δε ὑψηλὸς ἦ, νομίζω ορθῶς ἂν ποιεῖν μεσοτομῶν, ἵνα μήτε οἱ ἀλοῶντες μοχθῶσι περιττὸν πόνον μήτε οἱ λικμώντες ὧν οὐδὲν προσδέονται. τὸ δὲ ἐν τῇ γῇ λεφθὲν ἡγνούμαι καὶ κατακαυθὲν συνωφελεῖν ἂν τὴν γῆν καὶ εἰς κόπρον ἐμβληθὲν τὴν κόπρον συμπληθύνειν.

X. Poroi 4.2 (Marchant)

οὕτω δὲ πάλαι ὀρυττομένης τε καὶ ἐκφορουμένης τῆς ἀργυρίτιδος κατανοήσατε, τί μέρος οἱ ἐκβεβημένοι σωροὶ τῶν αὐτοφυῶν τε καὶ ὑπαργύρων λόφων.

Xenoph. fr. 1.1-4, 7-8 (Franyó & Gan 1981a)

Nῦν γὰρ δὴ ζάπεδον καθαρὸν καὶ χεῖρες ἀπάντων
καὶ κύλικες· πλεκτοὺς δ' ἀμφιτιθεῖ στεφάνους,
ἄλλος δ' εὐῶδες μύρον ἐν φιάλῃ παρατείνει·
κρητῆρ δ'
ἔστηκεν μεστὸς εὐφροσύνης·σ
(...)
ἐνδὲ μέσοισ' ἀγνήν ὀδμήν λιβανωτὸς ἴησι,
ψυχρὸν δ' ἐστὶν ὕδωρ καὶ γλυκύ καὶ καθαρὸν, (...)

G.2 WASTE DISPOSAL

Arist. HA 8.7 (Balme)

ὅλως δε περὶ τοὺς βίους πολλὰ ἂν θεωρηθεῖη μιμήματα τῶν ἄλλων ζώων τῆς ἀνθρωπίνης ζωῆς, καὶ μᾶλλον ἐπὶ τῶν ἐλαττόνων ἢ ἐπὶ τῶν μειζόνων ἴδοι τις ἂν τὴν τῆς διανοίας ἀκρίβειαν, οἷον πρῶτον ἐπὶ τῶν ὀρνίθων ἢ τῆς χελιδόνος σκηνοπηγία· τῇ γὰρ περὶ τὸν

πηλὸν ἀχυρώσει τὴν αὐτὴν ἔχει τάξιν. συγκαταπλέκει γὰρ τοῖς κάρφεσι τὸν πηλόν. (.) καὶ τὴν κόπρον το μὲν πρῶτον αὐτὰ ἐκβάλλουσιν, ὅταν δ αὐξηθῶσι μεταστρέφοντας ἔξω διδάσκουσι τοὺς νεοτοὺς προΐσθαι

Call. Iamb. 7, Dieg. 7.32 - 8 20 (Kerkhecker)

Ἑρμᾶς ὁ Περφεραῖος Ἀ νίων θεός | Περφεραῖος Ἑρμῆς ἐν Αἴνῳ τῇ | πόλει τῆς Θράκης τιμᾶται ἐντεῦθεν· Ἐπειὸς πρὸ τοῦ δουρείου ἵππου ἐδημιούργησεν Ἑρμᾶν, ὃν ὁ Σκάμανδρος πολὺς | ἐνεχθεὶς κατέσυρεν· ὁ δ' ἐντεῦθεν ποση|νέχθη εἰς τὴν πρὸς Αἴνῳ θάλασσαν, ἀφ' ἧς | ἀλιευόμενοί τινες ἀνείλκυσαν αὐτὸν τῇ | σαγήνῃ. ὅτε ἐθεάσαντο αὐτόν, καταμεμψά|μενοι τὸν βόλον πρὸς ἀλέαν σχίζειν τε αὐ|τὸν καὶ παρακαίειν αὐτοῖς ἐπεχείρουν, | οὐδὲν δὲ (ἦττον) ἔφθασαν ἢ τὸν ὤμον παί|σαντες τραύματος τύπον ἐργάσασθαι, διαμ|περὲς δὲ ἠσθένησαν· καὶ ὅλον αὐτὸν καίειν | ἐπεχείρουν, τὸ δὲ πῦρ αὐτῷ περιέρρει· ἀπει|πόντες κατέρριψαν αὐτόν εἰς τὴν θάλασ|σαν. ἐπεὶ δὲ αὐτὶς ἐδικτυούλκησεν, θεὸν νο|μίσαντες εἶναι ἢ θεῷ προσήκοντα κα|θιδρύσαντο ἐπὶ τοῦ αἰγιαλοῦ ἱερὸν αὐτοῦ, | ἀπήρξαντό τε τῆς ἄγρας ἄλλος παρ' ἄλλου | αὐτὸν πε|ριφέρων. τοῦ δὲ Ἀπόλλωνος χρή|σαντος εἰ|σεδέξαν]το τῇ πόλει καὶ παρα|[π]λησίως τ[οῖς θεοῖς] ἐτίμων.

Eub. fr. 53 (Kock; ap. Ath. 10.417D)

μετὰ ταῦτα Θήβας ἦλθον, οὗ τὴν νύχθ' ὅλην τὴν θ' ἡμέραν δειπνοῦσι καὶ κοπρῶν' ἔχει ἐπὶ ταῖς θύραις ἕκαστος, οὗ πλήρει βροτῷ οὐκ ἔστι μείζον ἀγαθόν· ὡς χεζητιῶν μακρὰν βαδίζων, πολλὰ δ' ἀσθμαίνων ἀνήρ, δακνων τα χεῖλη παγγέλοιός ἐστ' ἰδεῖν.

Eub. fr. 66 (Kock; ap. Ath. 10 417D-E)

σὺ μὲν τὸ Θήβης, ὡς λέγεις, πέδον λιπῶν, ἀνδρῶν ἀρίστων ἐσθίειν δι' ἡμέρας ὅλης τραχήλους καὶ κοπρῶνας πλησίον ...

Hom. II. 19.266-8 (Dimock)

Ἦ, καὶ ἀπὸ στόμαχον κάπρου τάμε νηλεὶ χαλκῷ. τον μὲν Ταλθύβιος πολιῆς ἀλὸς ἐς μέγα λαῖτμα ῥῖψ' ἐπιδινήσας, βόσιν ἰχθύσιν·

Hom. Il. 21.49-52 (Dimock)

τὸν δ' ὡς οὖν ἐνόησε ποδάρκης δῖος Ἀχιλλεὺς γυμνόν, ἄτερ κόρυθός τε καὶ ἀσπίδος, οὐδ' ἔχεν ἔγχος, ἀλλὰ τὰ μὲν ῥ' ἀπὸ πάντα χαμαὶ **βάλε**. τεῖρε γὰρ ἰδρῶς φεύγοντ' ἐκ ποταμοῦ, κάματος δ' ὑπὸ γούνατ' ἐδάμνα·

Hdt. 1.50.1 (Feix)

μετὰ δὲ ταῦτα **θυσίησι** **μεγάλῃσι** τὸν ἐν Δελφοῖσι θεὸν **ιλάσκετο**. κτήνεά τε γὰρ τὰ θύσιμα πάντα τρισχίλια **ἔθυσε**, κλίνας τε ἐπιχρύσους καὶ ἐπαργύρους καὶ φιάλας χρυσέας καὶ εἶματα πορφύρεα καὶ κιθῶνας νήσας **πυρὴν** **μεγάλην** **κατέκαιε**, ἐλπίζων τὸν θεὸν μᾶλλον τι τούτοισι ἀνακτήσεσθαι. Λυδοῖσί τε πᾶσι προεῖπε **θύειν** πάντα τινὰ αὐτῶν τοῦτο ὅ τι ἔχει ἕκαστος.

Hdt. 1.64.1-2 (Feix)

πειθομένων δὲ τῶν Ἀθηναίων, οὕτω δὴ Πεισίστρατος τὸ τρίτον σχὼν Ἀθήνας ἐρρίζωσε τὴν τυραννίδα ἐπικούροισί τε πολλοῖσι καὶ χρημάτων συνόδοισι, τῶν μὲν αὐτόθεν, τῶν δὲ ἀπὸ Στρυμόνος ποταμοῦ συνιόντων, ὁμήρους τε τῶν παραμεινάντων Ἀθηναίων καὶ μὴ αὐτίκα φυγόντων παῖδας λαβὼν καὶ καταστήσας ἐς Νάξον (...), πρὸς τε ἔτι τούτοισι τὴν νῆσον Δῆλον **καθήρας** ἐκ τῶν λογίων, **καθήρας** δὲ ᾧδε ἐπι' ὅσον ἔποψις τοῦ ἱροῦ εἶχε, ἐκ τούτου τοῦ χώρου παντὸς ἐξορύξας τοὺς νεκροὺς μετεφόρει ἐς ἄλλον χῶρον τῆς Δήλου.

Hdt 2 35 3 (Feix)

εὐμαρείη χρέωνται ἐν τοῖσι οἴκοισι, ἐσθίουσι δε ἔξω ἐν τῆσι ὁδοῖσι (...).

Hdt 3 40 4, 41 2, 43 1 (Feix))

φροντίσας τὸ ἄν εὐρῆς ἐόν τοι πλείστου ἀξιον καὶ ἐπ' ᾧ σὺ ἀπολομένῳ μάλιστα τὴν ψυχὴν ἀλγήσεις, τοῦτο **ἀπόβαλε** οὕτω ὅκως μηκέτι ἤξει ἐς ἀνθρώπους. (...) ἐπεὶ ᾧν ταύτην οἱ ἐδόκεε **ἀποβαλεῖν**, ἐποίησε τοιάδε· πεντηκόντερον πληρώσας ἀνδρῶν ἐσέβη ἐς αὐτήν, μετὰ δὲ ἀναγαγεῖν ἐκέλευε ἐς τὸ πέλαγος· ὡς δε ἀπὸ τῆς νήσου ἕκας ἐγένετο, περιελόμενος τὴν σφρηγίδα πάντων ὀρώντων τῶν συμπλόων **ρίπτει** ἐς τὸ πέλαγος. (... ἐπιλεξάμενος δε ὁ Ἄμασις τὸ βιβλίον τὸ παρὰ τοῦ Πολυκράτους ἦκον, ἔμαθε ὅτι ἐκκομίσαι τε ἀδύνατον εἶη ἀνθρώπῳ ἀνθρώπον ἐκ τοῦ μέλλοντος γίνεσθαι

πρήγματος καὶ ὅτι οὐκ εὖ τελευτήσιν μελλοὶ Πολυκράτης εὐτυχέων τὰ πάντα, ὅς κα' τὰ ἀποβάλλει εὐρίσκει.

Hdt. 4.35.2-4 (Feix)

ταύτας μὲν νυν τῇ Εἰλειθυίῃ ἀποφερούσας ἀντὶ τοῦ ἠκυτόκου τον ἐτάξαντο φόρον ἀπικέσθαι, τὴν δὲ Ἄργην τε καὶ τὴν Ἰωνίαν ἅμα αὐτοῖσι τοῖσι θεοῖσι ἀπικέσθαι λέγουσι καὶ σφι τιμὰς ἄλλας δεδόσθαι πρὸς σφέων· καὶ γὰρ ἀγείρειν σφι τὰς γυναῖκας, ἐπονομαζούσας τὰ οὐνόματα ἐν τῷ ὕμνῳ τὸν σφι Ἰωλὴν ἀνὴρ Λύκιος ἐποίησε, παρὰ δὲ σφέων μαθόντας νησώτας τε καὶ Ἰωνας ὕμνέειν Ἰωνίαν τε καὶ Ἄργην ὀνομάζοντάς τε καὶ ἀγείροντας (...), καὶ τῶν μηρίων καταγιζομένων ἐπὶ τῷ βωμῷ τὴν σποδὸν ταύτην ἐπὶ τὴν θήκην τὴν Ἰωνίαν τε καὶ Ἀργῆς ἀναισιμοῦσθαι ἐπιβαλλομένην.

Hdt. 4.154.1-3 (Feix)

(...) ἔστι τῆς Κρήτης Ὀαξὸς πόλις, ἐν τῇ ἐγένετο Ἐτέαρχος βασιλεύς, ὅς ἐπὶ θυγατρὶ ἀμήτορι τῇ οὐνόμα ἦν Φρονίμη, ἐπὶ ταύτῃ ἔγημε ἄλλην γυναῖκα. ἡ δὲ ἐπεσελθοῦσα ἐδικαίου καὶ τῷ ἔργῳ εἶναι μητριῇ τῇ Φρονίμῃ, παρέχουσα τε κακὰ καὶ πᾶν ἐπ' αὐτῇ μηχανωμένη, καὶ τέλος μαχλοσύνην ἐπενείκασα οἱ πείθει τὸν ἄνδρα ταῦτα ἔχειν οὕτω. ὁ δὲ ἀναγνωσθεὶς ὑπὸ τῆς γυναικος ἔργον οὐκ ὄσιον ἐμηχᾶνατο ἐπὶ τῇ θυγατρὶ. ἦν γὰρ δὴ Θεμίσων ἀνὴρ Θηραῖος ἔμπορος ἐν τῇ Ὀαξῷ· τοῦτον ὁ Ἐτέαρχος παραλαβὼν ἐπὶ ξείνια ἐξορκῶν ἢ μὲν οἱ διηκονήσιν ὅτι ἂν δεηθῇ. ἐπεῖτε δὲ ἐξώρκωσε, ἀγαγὼν οἱ παραδιδῶν τὴν ἑωυτοῦ θυγατέρα καὶ ταύτην ἐκέλευε καταποντῶσαι ἀπαγαγόντα.

Hdt. 7.54.2-3 (Feix)

ὡς δ' ἐπ' ἀνέτελλε ὁ ἥλιος, σπένδων ἐκ χρυσῆς φιάλης Ξέρξης ἐς τὴν θάλασσαν εὐχέτο πρὸς τὸν ἥλιον μηδεμίαν οἱ συντυχίην τοιαύτην γενέσθαι, ἢ μιν παύσει καταστρέψασθαι τὴν Εὐρώπην πρότερον ἢ ἐπὶ τέρμασι τοῖσι ἐκείνης γένηται. εὐξάμενος δὲ ἐσέβαλε τὴν φιάλην ἐς τὸν Ἑλλήσποντον καὶ χρύσειον κρητῆρα καὶ Περσικὸν ξίφος, τὸν ἄκινακην καλεοῦσι. ταῦτα οὐκ ἔχω ἀτρεκέως διακρίναι οὔτε εἰ τῷ ἡλίῳ ἀνατιθεὶς κατῆκε ἐς τὸ πέλαγος οὔτε εἰ μετεμέλησέ οἱ τὸν Ἑλλήσποντον μαστιγώσαντι καὶ ἀντὶ τούτων τὴν θάλασσαν ἐδωρέετο.

Hdt. 9 13 2 (Feix)

πρὶν ἢ τοὺς μετὰ Παυσανίῳ ἐς τὸν Ἴσθμὸν ἐσβαλεῖν, ὑπεξεχώρει
ἐμπρήσας τε τὰς Ἀθήνας, καὶ εἴ κού τι ὀρθὸν ἦν τῶν τειχέων ἢ
τῶν οἰκημάτων ἢ τῶν ἱρῶν, πάντα καταβαλὼν καὶ συγχώσας.

I 3682 (Fine 1951, 8 no. 16)

ὄρος κοπ[ρῶνος]
[καὶ] οἰκημ[ατίου]
[πεπ]ρ[αμένων ἐπὶ]
[λύσει - - - - -]
[- - - - -]

IG II² 2742

[ὄρ]ος οἰκίας καὶ κ[οπρ]ῶνος

IG II² 2496.9-12

τὸ ἐργαστήριον τὸ ἐν Πειραεῖ καὶ τ
ἦν οἴκησιν τὴν προσοῦσαν αὐτῷ
καὶ τὸ οἰκημάτιον τὸ ἐπὶ τοῦ κοπρῶνος εἰς ἅπαντ
α χρόνον

Plu. Mor. 820E (Carriere)

Τῶν δὲ Δημητρίου τοῦ Φαληρέως τριακοσίων ἀνδριάντων οὐδεὶς
ἔσχεν ἰὸν οὐδὲ πίνον, ἀλλὰ πάντες ἔτι ζῶντος προανηρέθησαν· τοὺς
δὲ Δημάδου κατεχώνευσαν εἰς ἀμίδας.

Plu. Tim 23.6-8 (Perrin)

ἤδη δὲ καὶ τῶν ἐξ Ἰταλίας καὶ Σικελίας πολλοὶ τῷ Τιμολέοντι
συνεληλύθεισαν, καὶ γεγομένοις αὐτοῖς ἑξακισμυρίοις τὸ πλῆθος, ὡς
Ἄθανις εἶρηκε, τὴν μὲν χώραν διένειμε, τὰς δ' οἰκίας ἀπέδοτο
χιλίων ταλάντων, ἅμα μὲν ὑπολειπόμενος τοῖς ἀρχαίοις
Συρακοσίοις ἐξωνεῖσθαι τὰς αὐτῶν, ἅμα δὲ χρημάτων ευτορίαν τῷ
δήμῳ μηχανώμενος, οὕτως πενομένῳ καὶ πρὸς τᾶλλα καὶ πρὸς τὸν
πόλεμον, ὥστε καὶ τοὺς <τῶν τυράννων> ἀνδριάντας ἀποδόσθαι,
ψήφου διαφερομένης ὑπὲρ ἑκάστου καὶ γιγομένης κατηγορίας, ὥστε
ἀνθρώπων εὐθύνας δίδόντων· ὅτε δὴ φασὶ τὸν Γέλωνος ἀνδριάντα
τοῦ παλαιοῦ τυράννου διατηρῆσαι τοὺς Συρακοσίους,

καταχειροτονουμένων τῶν ἄλλων, ἀγαμένους καὶ τιμῶντας τὸν ἄνδρα τῆς νίκης ἦν πρὸς Ἰμέρα Καρχηδονίου ἐνίκησεν.

POxy 661.45-50, col. 2 (Kerkhecker 1999, 190-1)

οἱ δ' εἶπαν [...] νε[
μῆ τύ γ' αὐτίς ἔνθ[ησ."]
ἦ, καί με πόντον [
ἦνθε σαυνιαστά[σ.
ἔρριψαν, αὐθι δ' ἐξ ἀλὸ[σ
π[.]ρβαλον κατάγρ[
ἐ[κ] τὰς θαλάσσας τ[

X Oec. 20.10-1 (Pomeroy)

ἀλλὰ καὶ κόπρον λέγουσι μὲν πάντες ὅτι ἄριστον εἰς γεωργίαν ἐστὶ καὶ ὀρώσι δὲ αὐτομάτην γινομένην· ὅμως δὲ καὶ ἀκριβοῦντες ὡς γίγνεται, καὶ ῥάδιον ὄν πολλὴν ποιεῖν, οἱ μὲν καὶ τούτου ἐπιμελοῦνται ὅπως ἀθροίζηται, οἱ δὲ παραμελοῦσι. καίτοι ὕδωρ μὲν ὁ ἄνω θεὸς παρέχει, τὰ δὲ κοῖλα πάντα τέλματα γίγνεται, ἡ γῆ δὲ ὕλην παντοίαν παρέχει, καθαίρειν δὲ δεῖ τὴν γῆν τὸν μέλλοντα σπεῖρειν· ἃ δ' ἐκποδῶν ἀναιρεῖται, ταῦτα εἴ τις ἐμβάλλοι εἰς τὸ ὕδωρ, ὁ χρόνος ἤδη αὐτὸς ἂν ποιήσῃ ὅς ἡ γῆ ἡδεταί. ποία μὲν γὰρ ὕλη, ποία δὲ γῆ ἐν ὕδατι στασίμῳ οὐ κόπρος γίγνεται;

G.3 RECYCLING PRACTICES AND PROCESSES

Ar. Ach. 926-9 (Rogers)

ΔΙΚ. Ξυλλάμβαν' αὐτοῦ το στόμα· δός μοι φορυτόν, ἴν' αὐτοῦν ἐνδήσας φέρω, [ὥσπερ κέραμον, ἵνα μὴ καταγῆ φορούμενος]

D 24.121 (Murray)

οἶμαι δέ, νῆ τὸν Δία τὸν Ὀλύμπιον, ᾧ ἄνδρες δικασταί, οὐκ ἀπὸ ταῦτομάτου τὴν ὕβριν καὶ τὴν ὑπερηφανίαν ἐπελθεῖν Ἄνδροτίωνι, ἀλλ' ὑπὸ τῆς θεοῦ ἐπιπεμφθεῖσαν, ἴν', ὥσπερ οἱ τὰ ἀκρωτήρια τῆς Νίκης περικόψαντες ἀπὼντ' αὐτοὶ ὑφ' αὐτῶν, οὕτω καὶ οὗτοὶ αὐτοῖς δικαζόμενοι ἀπόλοντο καὶ τὰ χρήματα καταθεῖεν δεκαπλάσια κατὰ τοὺς νόμους ἢ δεθεῖν.

Demetrios, *De Elocutione* 281 (Harris 1995, 273)

Τάχα δε καὶ ὁ εὐφημισμὸς καλούμενος μετέξοι τῆς δεινότητος, καὶ ὁ τὰ δύσφημα εὐφημα ποιῶν, καὶ τὰ ἀσεβήματα, οἷον ὡς ὁ τὰς Νίκας χρυσᾶς **χωνεύειν** κελεύων καὶ καταχρησθαι τοῖς χρήμασιν εἰς τὸν πόλεμον οὐχ οὕτως εἶπεν π οχείρως, ὅτι **κατακόψωμεν** τὰς Νίκας εἰς τὸν πόλεμον· **δύσφημον γὰρ ἂν οὕτως καὶ λοιδοροῦντι** εἰκόδς ἦν τὰς θεάς, ἀλλ' εὐφημότερον, ὅτι συγρησόμεθα ταῖς Νίκαις εἰς τὸν πόλεμον· οὐ γὰρ **κατακόπτοντι** τὰς Νίκας εἰκόεν οὕτως ῥηθέν ἀλλὰ συμμάχους μεταποιοῦντι.

D.S. 11.55

ἕκαστος τὸν πολιτὸν εἰς ὄστρακον ἔγραφε τοῦνομα...

D.Chr. 37.41 (Crosby)

οἶδα δ' ἐγὼ καὶ Ἀρμόδιον καὶ Ἀριστογείτονα δουλεύσαντας ἐν Πέρσαις, καὶ Δημητρίου τοῦ Φαληρέως πεντακοσίους ἀνδιάντας καὶ χιλίους ὑπὸ Ἀθηναίων μιᾷ καὶ τῇ αὐτῇ ἡμέρα **πάντας καθηρημένους**. ἐτόλμησαν δὲ καὶ Φιλίππου τοῦ βασιλέως **ἀμίδας κατασκεδάσαι**.

D.L. 5.77 (Hicks)

Σφόδρα δὲ λαμπρὸς ὦν παρὰ τοῖς Ἀθηναίοις, ὅμως ἐπεσκοτήθη καὶ αὐτὸς ὑπὸ τοῦ τὰ πάντα διεσθιοντος φθόνου. ἐπιβουλευθεὶς γὰρ ὑπὸ τινων δίκην θανάτου οὐ παρῶν ᾤφλεν. οὐ μὴν ἐκυρίευσαν τοῦ σώματος αὐτοῦ, ἀλλὰ τὸν ἰὸν ἀπήρυγον εἰς τὸν χαλκόν, **κατασπάσαντες αὐτοῦ τὰς εἰκόνας καὶ τὰς μὲν ἀποδόμενοι, τὰς δὲ βυθίσαντες, τὰς δὲ κατακόψαντες εἰς ἀμίδας· λέγεται γὰρ καὶ τοῦτο. μία δὲ μόνη σώζεται ἐν ἀκροπόλει**.

Hdt 1 50 2 (Feix)

ὡς δὲ ἐκ τῆς θυσίης ἐγενετο, **καταχεάμενος χρυσὸν ἀπλετον ἡμιπλίνθα** ἐξ αὐτοῦ ἐξήλαυνε, ἐπι μὲν τὰ μακρότερα ποιέων ἐξαπάλαιστα, ἐπι δε τα βραχύτερα τριπάλαιστα, ὕψος δε παλαιστιαιᾶ, ἀριθμον δε ἑπτακαίδεκα καὶ ἑκατόν, καὶ τούτων ἀπέφθου χρυσοῦ τέσσερα, τρίτον ἡμιτάλαντον ἕκαστον ἔλκοντα, τα δὲ ἀλλὰ ἡμιπλίνθια λευκοῦ χρυσοῦ, σταθμον διτάλαντα.

Hdt. 2.172.1 5 (Fe x)

Ἄπριεω δὲ ᾧδε καταραιορημένου ἐβασίλευσε Ἄμασις, νομοῦ μὲν Σαίτεω ἑών, ἐκ τῆς δὲ ἦν πόλιος, οὐνομά οἱ ἐστι Σιούφ. τὰ μὲν δη πρῶτα κατῶνοντο τὸν Ἄμασιν Αἰγύπτιοι καὶ ἐν οὐδεμιῇ μοίρῃ μεγάλη ἦγον, ἅτε δὴ δημότην τὸ πρὶν ἑόντα καὶ οἰκίης οὐκ ἐπιφανέος· μετα δε σοφίῃ αὐτοῦς ὁ Ἄμασις, οὐκ ἀγνωμοσύνη προσηγάγετο. ἦν οἱ ἄλλα τε ἀγαθὰ μυρία, ἐν δὲ καὶ ποδανιπτῆρ χρύσεος, ἐν τῷ αὐτός τε ὁ Ἄμασις καὶ οἱ δαιτυμόνες οἱ πάντες τοὺς πόδας ἐκάστοτε ἐναπενίζοντο· τοῦτον κατ' ὦν κόψας ἄγαλμα δαίμονος ἐξ αὐτοῦ ἐποίησατο καὶ ἴδρυσε τῆς πόλιος ὅκου ἦν ἐπιτηδεότατον· οἱ δὲ Αἰγύπτιοι φοιτῶντες π ὅς τῷγαλμα ἐσέβοντο μεγάλως· μαθὼν δὲ ὁ Ἄμασις τὸ ἐκ τῶν ἀστῶν ποιούμενον, συγκαλέσας Αἰγυπτίους ἐξέφηνε φὰς ἐκ τοῦ ποδανιπτῆρος τῷγαλμα γεγονέναι, ἐς τὸν προτερον μὲν τοὺς Αἰγυπτίους ἐνεμέειν τε καὶ ἐνουρέειν καὶ πόδας ἐναπονίζεσθαι, τότε δὲ μεγάλως σέβεσθαι. ἤδη ὦν ἔφη λέγων ὁμοίως αὐτὸς τῷ ποδανιπτῆρι πεπρηγέναι· εἰ γὰρ πρότερον εἶναι δημότης, ἀλλ' ἐν τῷ παρεόντι εἶναι αὐτῶν βασιλεύς· καὶ τιμᾶν τε καὶ προμηθέεσθαι ἐωυτὸν ἐκέλευε. τοιοῦτω μὲν τρόπῳ προσηγάγετο τοὺς Αἰγυπτίους ὥστε δικαιοῦν δουλεύειν.

Hes. Op. 753-5 (Feix)

μηδὲ γυναικείῳ λουτρῷ χροῖα φαιδρύνεσθαι ἀνέρα· λευγαλέη γὰρ ἐπὶ χρόνον ἔστ' ἐπὶ καὶ τῷ ποιῆ·

IG II² 1479 26-7

ἐ[κ τῶν κατὰ μικρὸν παραδι]δομένων ἐν τῷ Βραυρ[ωνίῳ]

IG II 839.42-4

(ὅπως ἂν τούτων γενομένων εχει καλῶς καὶ εὐσεβῶς τῇ βουλῇ καὶ τῷ δήμῳ τα πρὸς τοὺς θεούς).

Lycurg Leokr 117 Con nis)

Ἴππαρχον γὰρ τὸν Χάρμου, οὐχ ὑπομείναντα τὴν περι τῆς προδοσίας ἐν τῷ δήμῳ κρίσιν, ἀλλ' ἐρημον τὸν ἀγῶνα ἐάσαντα, θανάτῳ τοῦτον ζημιώσαντες, ἐπειδὴ τῆς ἀδικίας οὐκ ἔλαβον τὸ σῶμα ὄμηρον, τὴν εἰκόνα αὐτοῦ ἐξ ἀκροπολεως καθελόντες καὶ συγχωνεύσαντες καὶ ποιήσαντες στήλην, ἐψηφίσαντο εἰς ταύτην ἀναγράφειν τοὺς ἀλιτηριοὺς καὶ τοὺς προδότας·

Lys. 3 28 (Rogers)

Λέγει δ' ὡς ἡμεῖς ἦλθομεν ἐπὶ τὴν οἰκίαν τὴν τούτου ὄστρακον ἔχοντες, καὶ ὡς ἠπέλουν αὐτῷ ἐγὼ ἀποκτενεῖν, καὶ ὡς τοῦτό ἐστὶν ἡ πρόνοια.

Philoch. fr. 30 (Jacoby)

(..) ἐτίθεσαν τὰ ὄστρακια, στρεφοντες τὴν ἐπιγραφὴν.

Pl. Ti. 33C-D (Bury)

οὐδ' αὖ τινὸς ἐπιδεῆς ἦν ὀργάνου σχεῖν, ὧ τὴν μὲν εἰς ἑαυτὸ τροφήν δέξειτο, τὴν δὲ πρότερον ἐξικμασμένην ἀποπέμψο πάλιν· ἀπήει τε γὰρ οὐδὲν οὐδὲ προσήειν αὐτῷ ποθέν· οὐδὲ γὰρ ἦν. αὐτὸ γὰρ ἑαυτῷ τροφήν τὴν ἑαυτοῦ φθίσιν παρέχον καὶ πάντα ἐν ἑαυτῷ καὶ ὑφ' ἑαυτοῦ πάσχον καὶ δρῶν ἐκ τέχνης γέγονεν· ἠγήσατο γὰρ αὐτὸ ὁ ξυνθεὶς αὐτάρκες ὃν ἄμεινον ἔσεσθαι μᾶλλον ἢ προσδεῆς ἄλλων.

P u. Arist. 7.5 (Perrin)

ὄστρακον ἕκαστος λαβὼν καὶ γράψας ὃν ἐβούλετο μεταστῆσαι τῶν πολιτῶν...

Sokolowski 1962, no. 17-21 (Zeus Temenites; Weil 1876, 344)

--- κοπροφορᾶς ἐμβαλεῖ ἐκάστης] πεντήκοντα καὶ ἑκατὸν -- | ἄρ[σί]χους [χωρούσας] μέ[δι]μνον τέσσαρα ἡμίεκτα, ἐὰν [δὲ] -- | (20) -[ἀπο]τείσει ἐκάστης ἀρσίχου τριῶβολον.

Sokolowski 1969, no. 14 20-5, 33-7 IG I³ 84; Lawton 1995, 83-4 no 4 pl. 2;Sanctuary of Kodr s, Neleus and Ba le, 418/7 BC)

(..) τὸν δὲ ἐνομεμένον τὸν ἰλὺν ἐκκο-

μίσασθαι ἐκ τῆς τάφρο ἐπὶ τῆσδε τῆς βολῆς ἀποδόντα τὸ ἀργύριον

τοῦ Νελεῖ ὅσα ἐπρίατο· ὁ δὲ βασιλεὺς ἐχσαλεψάτο τὸν πριάμενον τ-

ην ἰλὺν, ἐπειδὴν ἀποδοῖ τε μισθοσιν· τὸν δὲ μισθοσαμενον τὸ τέμ-
ενος καὶ ὅποσον ἀντενγραφάτο ὁ βασιλεὺς ἐς τὸν τ-
ὸχον καὶ τὸς ἐγγυετας κατὰ τὸν νόμον ὅσπερ κείται τὸν τεμενῶν.

(..)

φυτεῦσαι φυτευτέρια ἐλαῶν με ὀλεζον ἔ διακόσια, πλέονα δὲ ἐὰν β-
ολεται, καὶ τῆς τάφρο καὶ τῷ ὕδατος κρατῆν τῷ ἐγ Διος τὸν μισθοσά-

μενον, ὅποσον ἐντὸς ῥεῖ τῷ Διονυσίῳ καὶ τῶν πυλῶν ἔ(ι) ἄλαδε
ἐ[χ]σελα-

ύνοσι οἱ μύσται καὶ ὅποσον ἐντος τῆς οἰκίας τῆς δεμοσίας καὶ τ-
ῶν πυλῶν αἰ ἐπὶ τὸ Ἴσθμονίκο βαλανεῖον ἐκφέρουσι (...)

Strab. 9.1.20 (Demetrius 307 BC)

ἐπέστησε γὰρ τῶν πολιτῶν Δημήτριον τὸν Φαληρέα, τῶν
Θεοφράστου τοῦ φιλοσόφου γνωρίμων, ὃς οὐ μόνον οὐ κατέλυσε τὴν
δημοκρατίαν, ἀλλὰ καὶ ἐπηνώρθωσε. Δηλοῖ δὲ τα ὑπομνήματα, ἃ
συνέγραψε περὶ τῆς πολιτείας ταύτης ἐκείνος. Ἄλλ' οὕτως ὁ φθόνος
ἴσχυσε καὶ ἡ πρὸς ὀλίγους ἀπέχθεια, ὥστε μετὰ τὴν Κασάνδρου
τελευτὴν ἠναγκάσθη φυγεῖν εἰς Αἴγυπτον· τὰς δ' εἰκόνας αὐτοῦ
πλείους ἢ τριακοσίας κατέσπασαν οἱ ἐπαναστάντες καὶ
κατεχώνευσαν, ἔνιοι δὲ καὶ προστιθέασιν, ὅτι καὶ εἰς ἀμίδας.

Th. 1.90.3; 93.2

τειχίζειν δὲ πάντας πανδημεὶ τοὺς ἐν τῇ πόλει καὶ αὐτοὺς καὶ
γυναῖκας καὶ παῖδας, φειδομένους μήτε ἰδίου μήτε δημοσίου
οἰκοδομήματος ὅθεν τις ὠφελία ἔσται εἰς τὸ ἔργον, ἀλλὰ
καθαιροῦντας πάντα ... καὶ δήλη ἡ οἰκοδομία ἔτι καὶ νῦν ἐστὶν ὅτι
κατὰ σπουδὴν ἐγένετο· οἱ γὰρ θεμέλιοι παντοίων λίθων ὑπόκεινται
καὶ οὐ ξυνειργασμένων ἔστιν ἢ, ἀλλ' ὡς ἕκαστόν ποτε προσέφερον,
πολλάί τε στῆλαι ἀπὸ σημάτων καὶ λίθοι εἰργασμένοι
ἐγκατελέγησαν.

X Oec. 7 8-9 (Pomeroy)

καὶ τριήρης δέ τοι ἡ σεσαγμένη ἀνθρώπων δια τί ἄλλο φοβερὸν
ἐστὶ πολεμίοις ἢ φίλοις ἀξιοθέατον ἢ ὅτι ταχὺ πλεῖ; δια τί δὲ ἄλλο
ἄλυποι ἀλλήλοις εἰσὶν οἱ ἐμπλέοντες ἢ διότι ἐν τάξει μὲν
κάθηνται, ἐν τάξει δὲ προνεύουσιν, ἐν τάξει δ' ἀναπίπτουσιν, ἐν
τάξει δ' ἐμβαίνουσι καὶ ἐκβάλλουσιν; ἢ δ' ἀταξία ὁμοίον τί μοι
δοκεῖ εἶναι οἰόνπερ εἰ γεωργος ὁμοῦ ἐμβάλοι κριθὰς καὶ
πυροῦς καὶ ὄσπρια, κᾶπειτα, ὅποτε δέοι ἢ μάζης ἢ ἄρτου
ἢ ὄψου, διαλέγειν δέοι αὐτῷ ἀντὶ τοῦ λαβόντα
διηυκρινημένοις χρήσθαι.

APPENDIX H. ARCHAEOLOGICAL SOURCES

A representative number of archaeological finds, which can be interpreted with respect to waste management practices are listed in this appendix. This data-base consists of three parts.¹ In the first, all entries related to (de facto) waste disposal practices are listed. Each entry represents an archaeological basic unit such as a well, a ditch, a layer. The first position in the heading codifies the practice(s) resulting in the deposition of the find assemblage ('dfD' stands for 'de facto Disposal' and 'D' for 'Disposal'). Sometimes the unit under discussion can be as large as the fill south of the Parthenon containing 40.000 m³, which was subsequently filled in from the archaic to the classical period (cat. 35). In the second, I list structures used for formal or informal disposal (dfDf, which stands for de facto disposal facility such as a vessel being converted into a urinal and Df which stands for Disposal facility e.g. enclosure subsequently filled). The last part deals with different kinds of recycling practices, including R1 (Reuse), R2 (Reutilisation) and R3 (Material Reprocessing).

The further subdivision of the parts dealing with waste disposal practices - part 1 and 3 - is in accordance to the variability defined at I.3.2, except that material culture categories are substituted by material in the heading, which made the catalogue a bit easier to use. The third position of the header of (de facto) Disposal facilities consider the material which was to be thrown or actually had been thrown into them and the material they were made of in brackets. Consequently the information codified in O(TC) would read: disposal facility made of terracotta contained or were meant to hold organic matter. If recycled objects were found in a layer, whose creation is of importance for my analysis, they are discussed under the earliest possible entry, which is in this case (de facto) Disposal practices (part 1), while a short cross-reference in part 3 would indicate where further recycling practices have been discussed. This structure leads in a few cases to long entries, but has the general advantage that the complex nature of waste management practices can be easily traced down.

Each catalogue entry consists of the following three parts a header with the four strategically important pieces of information defining variability of waste management (fig. 14). A box, which basically decodifies the header. The last third of the entry gives a brief account of the find-spot and the find-circumstances of waste objects (FS/FC). If waste management strategies were depicted in vase-paintings or if single objects show traces of recycling a short descriptive section is given at 'Description'.

¹The format of this data-base does not allow for Italics Greek letters etc. to be printed.

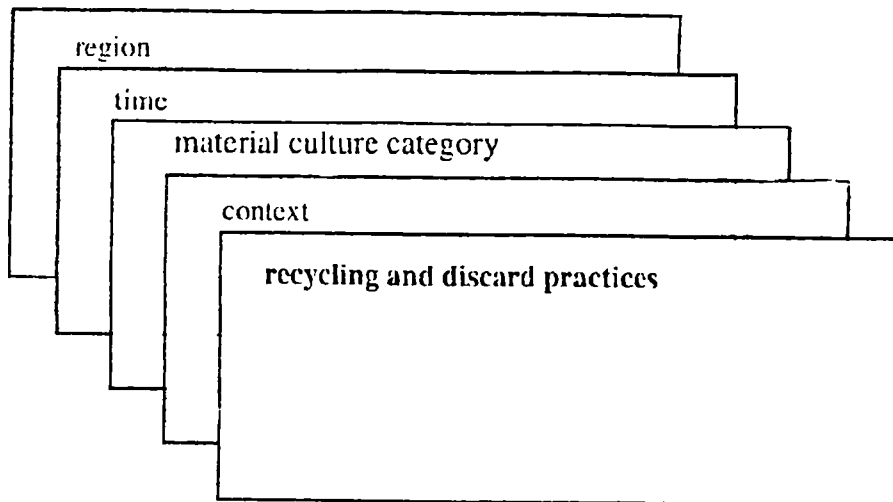


Fig. 14 Variability of waste management practices

The abbreviations used in the header are:

1st position

D	Disposal practice
dfD	de facto Disposal
Df	Disposal facility
dfDf	de facto Disposal facility
R	Recycling
R1	Reuse
R2	Reutilisation
R3	Material reprocessing
dfR	de facto Recycling
&	and
/	and/or
o	or
?	unknown
-	undefined (e.g. place as disposal facility or a depiction of a workshop in the field context, since not defined)

2nd position

Sa	Sanctuary
Se	Settlement
Ag	Agora
Ce	Cemetery
a	associated with

3rd position

TC	Terracotta
S	Stone
M	Metal
O	Organic
L	Liquid
V	Varia
Vi	Varia including

4th position

G	Geometric
A	Archaic
C	Classical
H	Hellenistic
M	Mythical
A-C	Sequence of actions, which started in the archaic period and was still carried out in the classical period

Abbreviations used in the 'box':

WMP	Waste management practices (combination)
WMP D	Disposal as waste management practice
WMP R	Recycling as waste management practice

Abbreviations in the last section:

FC/Comp	Find-circumstances and/or Composition (of stratum)
Dat	Date

