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ARCHAEOLOGICAL RESEARCH PRIORITIES FOR HUMAN REMAINS FROM SOUTH-EAST ENGLAND (KENT, EAST AND WEST SUSSEX AND SURREY)

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Summary

This paper details some of the information potentially available from the study of human bones and the ways in which this information may be limited by various factors affecting the nature of an assemblage. Priorities for archaeological work on human remains from the south-eastern counties are suggested in the light of the present state of work and the potential of bones from the area. A gazetteer of sites from the south-east for which bone reports have been prepared is appended.

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Archaeological Research Priorities for Human Remains From South-East England (Kent, East & West Sussex and Surrey)

S.A. Mays & T. Anderson

The aim of this document is to outline the way in which the study of human remains can contribute to our understanding of the human past in Kent, Surrey, and East and West Sussex (hereafter referred to as the south-eastern counties or south-east England). It provides a brief overview of the range of information potentially available from the study of human remains. The factors which determine the value of a collection are outlined. There then follows a discussion giving the approximate quantity of material, broken down by period, available from the region. The additional assemblages, which are most needed to help understand earlier life-styles and to fulfil specific archaeological aims identified for each period.

1. Information available from the study of human bones

(a) Demography. The parameters of interest here are the age at death and the sex of the skeleton.

Age at death can be estimated in the immature skeleton using the growth and development of the bones and teeth (Scheuer et al., 1980; Workshop of European Anthropologists, 1980). The older the child the more imprecise the estimate of age at death: the age of newborn infants can be assessed to within a few weeks, but by adolescence the margin of error is increased to 2-3 years.

Once growth has ceased, age at death may be estimated using various age-related changes in the skeleton, of which the most reliable for archaeological populations is probably wear on the teeth (Lovejoy et al., 1985; Brothwell, 1981). These changes do not proceed in such a regular way as do skeletal growth and development, so age at death estimates are necessarily less precise than they are for immature individuals. Most workers attempt no more than to classify adult skeletons as young adult (c. 18-30 years old), middle adult (c. 30-50) or older adult (c. 50+).

In adult skeletons, experienced osteologists can correctly assign sex in over 90% of cases if the pelvis and skull are available (Krogman, 1978: 112). In other bones, sexual dimorphism is less strongly expressed and, in many cases, the degree of overlap limits their value for sexing. Methods presently available for determining the sex of children are of questionable reliability, thus most workers do not attempt to sex child skeletons.

Determination of gender and age at death from skeletal remains helps to provide evidence for longevity in the past, as well as illuminating burial ritual and other cultural practices. For instance, in the large assemblage from the deserted Mediaeval village of Wharram Percy, North Yorkshire, it was found that nearly half the adult skeletons were aged over about 50 years at death, suggesting that once adulthood was attained these rural

peasants had a reasonable life expectancy. At many Anglo-Saxon cemeteries, the lack of foetal or perinatal remains suggests that they were interred outside formal cemetery areas (Molleson, 1991). In addition, detailed analysis of foetal and new-born infant skeletons may reveal whether or not infanticide was practised (Mays, 1993). The age and sex of the deceased may influence treatment in death, including range of grave goods and place of burial within the cemetery. Demographic data also provide the essential background against which to interpret other anthropological information such as bone measurements or frequencies of skeletal pathologies.

(b) Normal variation in the human skeleton. The study of normal skeletal variation includes measurement of the bones and teeth and recording minor variations in skeletal form such as presence or absence of bony spurs, extensions to joint surfaces or the presence of small extra bones (ossicles) in the skull and at other sites (these minor variations are often collectively termed "non-metric traits"). There is evidence that certain non-metric traits are largely inherited (Hauser & de Stefano, 1989); thus, the distribution of these variants in a cemetery may enable groups of genetically related burials to be discerned. Other non-metric traits, for example the so-called squatting facets (extensions to joint surfaces in the foot and ankle bones), are largely developmental (Trinkaus, 1975). Analysis of these variants may reveal something about activity patterns.

Comparison of cranial measurements may provide information on population movements (Brothwell & Krzanowski, 1974), efficiency of skeletal growth (Angel, 1982) and the influence of diet (Carlson & van Gerven 1977) or climate on the skeleton (Wolpoff, 1968).

Another aspect of normal variation in the human skeleton is the chemical composition of the bones. If burial conditions are favourable, it may be possible to obtain dietary information from trace element (Aufderheide, 1989) and stable isotope (Keegan, 1989) analysis. The ability to extract molecular information from ancient bones may in future provide useful genetic data (Brown & Brown, 1992).

(c) Abnormal skeletal variation: changes due to disease or injury. In antiquity the great killers were the acute infectious diseases. However the diseases which leave traces on the skeleton tend to be the more chronic (long-lasting) ones. Therefore, contrary to popular belief, it is generally not possible to determine cause of death in an ancient skeleton. Although palaeopathology, the study of disease and injury in ancient bones, can tell us little of how people died it may reveal a great deal about how they lived. Palaeopathological studies allow us to investigate aspects of diet, nutrition and general living conditions such as activity patterns, standards of hygiene and environmental conditions, and the effects of these factors on human health.

When combined with other archaeological data we can investigate how these aspects varied with subsistence strategy or settlement patterns, or with gender or social status. Palaeopathology also

makes an important contribution to our knowledge of the history of the major diseases which manifest themselves on the skeleton. Indeed, recent work in Canterbury has revealed several diseases previously considered to be restricted to modern day populations. For example, an elderly male skeleton showing changes consistent with spread of cancer from a primary focus in the prostate gland has been found at St Gregory's priory (Anderson, Wakely & Carter, 1992). This is the first time a case of prostate cancer has been reported in British Mediaeval remains.

If burial conditions are favourable, chemical analysis of the bones may reveal patterns of exposure to toxic elements, such as lead (Aufderheide et al., 1981). In the future, it may be possible successfully to identify diseases in ancient skeletons using immunological techniques or by detection of minute traces of DNA left in the bones by infecting micro-organisms (Denison, 1994).

(d) Study of burial practices. In addition to familial groupings, the study of human remains can shed light on other aspects of burial ritual. For example, the study of the distribution of disarticulated human bones deposited in Neolithic communal tombs, and the relative representation of different parts of the skeleton, aids the understanding of the ritual activities which occurred at the site (Thomas 1988).

The study of cremated bone may reveal data on funerary practices. For example the colour, and microscopic and spectroscopic properties of the bone fragments, may indicate the approximate temperature to which they have been exposed. In some cases differential firing of different parts of the body may suggest the position of the corpse on the pyre. The weight of bone recovered from intact cremation burials may provide a measure of the thoroughness with which the bone fragments were collected from the pyre for burial (Anderson & Fell, 1995).

2. General factors affecting the value of an assemblage of human bones

Study of an assemblage of human remains from a site will potentially contribute to all four categories of information discussed above, but the nature of the site and the skeletal material may suggest an emphasis on some areas at the expense of others. Some aspects of a human bone assemblage which affect the quantity and type of data potentially available from it are discussed below.

(a) Size of assemblage. Large numbers of individuals (in the region of several hundred) are preferable for statistical comparisons (within or between sites) of data on demographic parameters, skeletal form or frequencies of bony pathologies. A large assemblage also serves as a baseline or type site with which other sites in the region, or sites of similar date, can be compared.

The need for large collections is accentuated by the fact that only a sub-sample of an assemblage will prove suitable for the study of a specific feature. For example cranial form: firstly

comparisons are only generally useful for adults, secondly male and female adults need to be considered separately, and thirdly only some adults will have skulls sufficiently undamaged to permit measurements to be taken. Thus, the group of individuals suitable for a study of cranial form will be much smaller than the number of burials in the whole assemblage.

The size of a collection is thus a consideration of prime importance. However, decisions concerning priorities for study of human remains must be made against the background of existing work and the nature of assemblages from the period and region in question. For example, a handful of skeletons of Mesolithic date would be of great value given the general scarcity of British remains from this period. In some areas large cemeteries may not exist from certain periods due to the nature of ancient burial practices - for example the Bronze Age in south-east England. In such cases considerations of sample size do not apply in the same way as they would for periods where large cemeteries might be expected. Each site yielding but few individuals adds to the overall corpus of data, and data from more than one site need to be combined to permit statistical analyses. Furthermore, even small collections may be of great value for understanding ritual practices at a site.

An additional factor which might also be mentioned here is the question of whether or not the cemetery has been excavated in its entirety. It is rare for large cemeteries to be excavated to their full extent, although this may be the case for smaller, prehistoric, burial sites. Even if a cemetery is entirely excavated, the skeletal material rarely represents all interments which were made, as some burials have generally been destroyed by later activities at a site. Generally, the proportion of a cemetery which falls within the excavated area is not known with any accuracy. Although the value of an assemblage is increased somewhat if most or all of the cemetery area was excavated, it should not be thought of as a significant problem if this was not the case.

(b) Preservation and completeness of burials. The quantity and reliability of all classes of information which can be obtained is reduced if the bones are poorly preserved. Demographic data probably suffer least in this respect, bone measurement and pathological data the most. For very poorly preserved and incomplete burials a brief scan of the material in order to produce a short note on the state of the bone may be all that is merited in the way of specialist examination.

In some instances problems with the state of the material may be at least partially overcome if a suitable approach is adopted. For example at the Anglo-Saxon cemetery of Empingham II, Leicestershire, the bones were poorly preserved and highly fragmented, so it was decided to concentrate on a study of the teeth. Dental measurements, non-metric variants and pathologies were recorded. In this way useful data on demographic, metric and non-metric variation, and disease and dietary aspects could be gleaned even though the bones (as distinct from the teeth) did not merit extended study (Mays, 1990).

(c) Articulated skeletons versus disarticulated bone. If the remains of several individuals become mixed together it is not generally possible to separate the bones into discrete skeletons. Anthropological data relate to individuals; reliable demographic and pathological information cannot normally be obtained from an isolated bone. The quantity and reliability of anthropological data are severely compromised for disarticulated material. Redeposited or stray bone from disturbed graves is of limited value - at most a brief scan for unusual features is all that is required by way of specialist study. Consequently, every effort should be made to ensure that no mixing of individuals occurs during the excavation or post-excavation stage.

Although the study of bones which have become disarticulated as a result of post-depositional disturbance is of low priority, the same does not apply to material deliberately deposited that way in antiquity. These bones are of value since they may reveal much about ancient burial practices.

(d) Dating. Clearly the closer the dating the better, but the minimum which is normally required is dating to an archaeological period (e.g. Bronze Age, Romano-British, Anglo-Saxon, etc.) and preferably to sub-period (e.g. middle Iron Age, late Saxon). Bone which is less closely dated than this is unlikely to be worthy of specialist study. Unless the graves contain distinctive grave goods, it is not always possible to date the burials with great precision. At larger cemeteries, where the burials can be split into phases, changes in anthropological data (e.g. measurements, frequencies of pathologies etc) over time can be investigated. This greatly increases the research potential of the material.

(e) Availability of supporting archaeological and historical data for the site or region. The value of an assemblage is increased if there is good settlement evidence available for that region and period. If the settlement(s) relating to the cemetery itself has been excavated then this is particularly useful. Food remains, such as animal and fish bones, and seeds and other plant remains, provide evidence against which to interpret diet-related pathological or other changes in the human bones. Excavation of cess pits and latrines may augment the information available from the human bones, by yielding evidence for parasitic infestations (Jones, 1987). House forms and finds from settlements give clues as to the relative wealth of the community and perhaps information on potential disease loads. For example if dwellings were shared with livestock, as they were at Mediaeval Wharram Percy (Beresford & Hurst, 1990), this might aid interpretation of any skeletal evidence suggestive of tuberculosis or brucellosis - infections which may be acquired from domestic stock via inhalation of the causative micro-organisms.

For the historical period, written sources may aid interpretation of the skeletal data. For example, documentary evidence relating to friaries or other religious foundations may include names of some of the individuals buried within the buildings. Such evidence may enable us to define more closely the social class to which the burials belong.

For the post-Mediaeval period, skeletal remains for which biographical information such as name, age at death etc is available, in the form of grave markers or coffin plates, and can be associated with individual skeletons may be found. The value of such assemblages cannot be stressed too highly: the presence of bibliographical information aids the interpretation of the data from the skeletons, and collections of this type also enable human bone specialists to refine their existing methodologies and develop new ones.

More general historical evidence relating to the region can also provide useful pointers. For example in the churchyard at Mediaeval Wharram Percy, male skeletons were found heavily to outnumber females. Documentary evidence from nearby urban centres such as York, suggests female-led immigration during the Mediaeval period to work in domestic service and other occupations, particularly following the urban labour shortages caused by the Black Death. This suggests an interpretation for the sex imbalance observed in the Wharram Percy skeletons - perhaps women were migrating from this rural settlement to cities like York.

(f) The value of cremations versus inhumations.

Due to the fragmentation and distortion undergone by cremated bone, the anthropological data which can be obtained from cremation burials is severely limited compared with those from inhumations. Generally speaking, no useful cranial or post-cranial measurement data can be obtained; systematic recording of non-metric variation is not merited and little useful data on skeletal pathology can be gleaned. Estimation of sex, and age at death (at least separation of adult and sub-adult material) may be possible. However, as was discussed above, the study of burnt bone may reveal much about ancient cremation practices.

For periods where both cremation and inhumation were practised, the priority is for the latter, from which reliable anthropological data can be obtained. Cremations, however, should not be completely neglected - when both rituals were practised there is no reason to suppose that data from inhumations are representative of the population as a whole, and despite the difficulties, comparisons between contemporaneous inhumations and cremations are of interest. Cremated bone is much more resistant to destruction in the soil than is unburnt bone, hence cremated bone may be the only human remains to survive under some soil conditions. In addition, for certain periods cremation was the sole method of burial. In these circumstances cremations are clearly important as they constitute the only source of data.

(g) Special assemblages. Most cemetery assemblages are a result of the action of various causes of mortality on a population during a time span which may extend over several centuries. However from Mediaeval and post-Mediaeval contexts, and sometimes from earlier periods, what may be termed "catastrophe samples" may be recovered. These are individuals deriving from a very narrow time span, often sharing a common cause of death. Examples of "catastrophe samples" include plague pits, war

cemeteries and shipping disasters, such as the "Mary Rose". The unusual nature of these collections lends them particular importance, as they may shed light on aspects which cannot be investigated using other cemetery material. For example, plague pit groups can be used to study the demographic profile of individuals dying of plague, and assemblages of individuals killed in combat may provide insights into techniques of warfare in antiquity.

Other types of bone assemblage requiring special consideration include those associated with leper hospitals. These can shed important light on this interesting disease.

Although the nature of the material is important, priorities for further work also depend upon the existing assemblages in a region and the work which has been done on them. In the following sections these aspects are discussed for the different periods in the south-east.

3. Human remains in south-east England

(a) General

The geology of the South East of England (Fig. 1) is predominantly that of the Cretaceous period. The chalk bedrock of the North and South Downs dates to the Upper Cretaceous (70-100 million years ago). The Weald, located between the Downs, extends through Surrey, Sussex and most of Kent. The anticlinal strata are comprised of marine clay (Gault and Weald) and sand (Upper and Lower Greensand and the Hastings Beds). The well cemented Greensand is known as Ragstone or Kentish Rag. Dating to the Lower Cretaceous the Wealdan geology is slightly older than the surrounding chalk. More recent, Tertiary marine clay is restricted to the north of Kent, including parts of Thanet, the Herne Bay and Whitstable region, as well as the Isle of Sheppey. This so-called London Clay extends as far north as Great Yarmouth, and typically presents as a uniform brown, dark-grey or bluish deposit.

The alkaline nature of the calcareous bedrock is, in theory, well suited to good bone preservation. Although the majority of bones from rural sites in East Kent are buried in chalk, they are very fragile. The bone surfaces are frequently eroded and often show root markings; the articular ends are often fragmented. It is possible that percolating rainwater contributes to this poor level of preservation. Bones buried in calcareous clay are generally well preserved, although they are dark in colour and often quite difficult to clean. Skeletons from Canterbury, buried in the Head Brickearth, also generally consist of firm and solid well-preserved bone. Some of the best preserved material (from Stonar, Kent) was associated with an area of gravel extraction. The gravel being alkaline had contributed to the high standard of preservation.

In general, the poorest preservation occurs in the East of Kent, where the permeable chalk has lead to a loss of organic content. Consequently, the Anglo-Saxon burials in Thanet

(Monkton and Sarre) and at Dover (Buckland) are poorly preserved when compared to other local skeletal series. The low acidity means that the majority of soils in the south east, including clay, gravel and even sand, are potentially well suited to a good standard of bone preservation.

In the section below, priorities and research themes are discussed period by period. However there are, in addition, some more general research themes which might be explored for human remains for the region. For example, the proximity of the south-eastern corner of England to continental Europe means that skeletons from the region are of importance in investigating anthropological evidence for the arrival of immigrants, particularly at periods of transition which have traditionally been associated with significant movement of peoples from continental Europe (for example at the Neolithic/Bronze Age transition or during the early Anglo-Saxon period).

For most periods, the peoples from the south-eastern counties might be expected to have more contact with populations from mainland Europe. It would therefore be of interest to compare skeletons from this region with contemporary ones further inland, to investigate any differences in diet, disease or mortality patterns.

(b) Specific periods. In this section approximate numbers of burials available from each period in the SE are estimated. Those sites where bone survival is so poor that little anthropological data can be obtained have been excluded, as have those where there is no bone report and the skeletal remains have not been retained for study. Numbers of burials from each period are presented as bar charts, both for the SE (Fig. 2), and, for comparison, the neighbouring regions of Wessex and East Anglia (Figs. 3 & 4).

Maps are appended showing the locations of the sites considered in the present paper (Figs. 5-11), as is a gazetteer of sites for which bone reports have been prepared.

(i) Palaeolithic and Mesolithic. The region contains two lower Palaeolithic sites of world importance, Swanscombe, Kent and Boxgrove, West Sussex, which have produced human remains. The former has yielded the famous skull (Ovey, 1964), the latter a tibia which is about 500,000 years old, and so is currently the oldest hominid bone known from the British Isles (Roberts et al., 1994). However, there are no further human remains of Palaeolithic or Mesolithic date from the region. The general scarcity of human remains from these periods from British sites, and the potential of those from the Palaeolithic for the study of human evolution and the arrival of the earliest human groups in Britain, mean that should further such material be encountered, it would be of great importance.

(ii) Neolithic. At present, remains of fewer than 50 individuals are known from Neolithic contexts in the SE, of which about two thirds are cremations. Much of the inhumed bone comes from causewayed enclosure ditches and, although there are some fairly

complete articulated skeletons, many individuals are represented by only a few bone fragments, accentuating the paucity of material from this period.

(iii) Bronze Age. Remains from about 70 burials are known from Bronze Age contexts, of which about two-thirds are cremations. No more than a handful of inhumations are known from any one site, although there are a few sites yielding more cremations, for example Itford Hill barrow, East Sussex (12 cremations - Ratcliffe-Densham 1972). Perhaps uniquely for a Bronze Age barrow, a settlement site associated with it has been identified: a rim sherd recovered from the nearby settlement on Itford Hill was found to come from a partially intact vessel excavated from the barrow (Ellison 1972).

The corpus of Neolithic and Bronze Age burials is very small, compared not only with the wealth of prehistoric material from Wessex to the west, but also with the East Anglia region to the north (Figs. 2-4). Little analysis can be undertaken on such a small corpus - more burials from these periods are needed to investigate patterns of change over time or space. Neolithic and Bronze Age burials generally tend to be found either singly or in small groups. Although numbers of burials from each individual site excavated are likely to be few, the acquisition of further burials from these periods must be considered a priority.

(iv) Iron Age. About 350 burials have been obtained from Iron Age contexts of which the great majority are cremations. Most assemblages are small, by far the largest is that from Westhampnett, West Sussex. This site yielded about 240 cremations of late Iron Age date, and its importance is further increased by the discovery of probable pyre sites in the cemetery. Another important site is Mill Hill, Deal, Kent where 39 inhumations dating to the late Iron Age were recovered (Anderson, 1994).

The number of burials from the Iron Age is markedly larger than that from earlier prehistoric periods, but the total is dominated by late Iron Age cremations - we need more inhumations, and early and middle Iron Age material.

(v) Romano-British. Remains from about 800 individuals are presently known from the south-eastern counties, of which about two-thirds are cremations. The only really large assemblage is Chichester St Pancras, with 317 cremations and 9 inhumations, but only the inhumations have been the subject of a specialist report (Ginns 1971). Other important collections, for which bone reports have been prepared, include Chichester Westgate (35 inhumations - Foden 1993) and Canterbury, Cranmer House (53 cremations - Garrard 1987). Compared with the neighbouring regions, Wessex and East Anglia, Romano-British burials from the SE are few. There are also proportionately much fewer inhumations in the corpus from the SE (Figs. 2-4), this further restricts the osteological data available for the Romano-British period here.

(vi) Anglo-Saxon. About 2500 burials are known, of which the great majority are inhumations. Reports on major collections include Apple Down, Compton, West Sussex (126 inhumations, 56 cremations - Harman, 1990) and Eccles, Kent (132 inhumations - Manchester, 1984). Most material comes from early Saxon cemeteries, the only large assemblage from middle or late Saxon contexts is that from Eccles. Despite the fairly large numbers of burials, some of the larger collections are either incompletely reported (e.g. Guildown, Surrey, 223 inhumations; Ozengell, Kent, 237 inhumations; Finglesham, Kent, 243 inhumations) or the condition of the bone is poor due to aggresive soil conditions (e.g. Dover Buckland, 160 inhumations - Powers & Cullen, 1987). Special assemblages from this period include burials from Ashtead and Gally Hills (both Surrey), which seem to represent late Saxon execution sites (Waldron, 1989, 1992; Waldron & Waldron, 1988).

Despite the bias towards early Saxon material there is a paucity of cremation burials. The only site with large numbers of cremations is Apple Down, Compton, but even here little bone was recovered from most of them. When, as in the early Anglo-Saxon period, both cremation and inhumation were practised, it cannot be assumed that the inhumations are representative of burials as a whole in terms of demographic and other parameters. Although the anthropological information potentially available from cremations is more limited than that from inhumations, more cremations of Saxon date are needed.

Attempts have been made to investigate social organisation by analysing quality and range of grave goods on early Saxon sites. However integration of the osteological and archaeological evidence has rarely been carried out. Such an approach might provide data on the way in which an individual's health, diet and lifestyle varied with social status.

It would also be of interest to investigate the effects of human health in relation to the trend towards nucleated settlements in the middle and later Anglo-Saxon period. In the south-eastern counties a priority must be for more burials from these periods, as relatively few are known at the present time.

(vii) Mediaeval. About 3300 burials are known from the Mediaeval period in the south-eastern counties. Reports on major collections include the Guildford Blackfriars, Surrey (117 inhumations - Henderson 1984) and Stonar, Kent (160 inhumations - Eley & Bayley 1975).

Questions of relationships between settlements (large urban centres, smaller towns and villages) are of interest here, but most of the Mediaeval bones from the SE come from urban contexts (indeed about half the corpus comes from sites in Canterbury, with St Gregory's Priory alone yielding more than 1300 skeletons). More bones from smaller settlements are needed to help address these questions. Another area of interest is comparisons between individuals from different social classes, for example the graves of well-to-do benefactors buried in a religious foundation might be compared with those of the poorer classes buried elsewhere.

An important special collection from this period comes from the

leper hospital of St James & St Mary Magdelene, Chichester, where over 400 skeletons have been recovered. Due to the segregation of lepers in the Mediaeval period, skeletons presenting with leprosy are fairly rare finds in most cemeteries. This assemblage then, has considerable potential for shedding light on the disease in Mediaeval times. It is large enough for patterns of skeletal involvement to be discerned and for other investigations such as the study of demographic parameters of leper hospital internees etc. At time of writing a full bone report has yet to be published on this material, but some general discussions of the site and the bones have appeared (Magilton & Lee 1989; Lee & Magilton 1989). Limited excavations have also taken place at a leper hospital in Bidlington, West Sussex which revealed 9 skeletons (Ratcliffe-Densham 1964).

The figure of approximately 3300 Mediaeval burials given above excludes the collection of disarticulated bone from St Leonard's Church, Hythe, Kent. This consists of charnel which has been exhumed from the churchyard of St Leonard's and possibly other local churchyards. The collection seems to represent at least 4000 individuals and probably dates mainly to the Mediaeval period. Although it consists of disarticulated remains and its provenance is somewhat vague, the size of the assemblage means that it is an important collection. Studies of some of the skulls have been published (Parsons 1908; Stoesinger & Morant 1932), although little work has been done on the collection recently.

(viii) Post-Mediaeval. Approximately 400-500 post-Mediaeval burials are available from the south-eastern counties, reports on important collections include Anderson (1990) on 35 inhumations from Rochester Cathedral and Anderson (1991, forthcoming) on 92 inhumations from St George's church, Canterbury. The largest post-Mediaeval assemblage currently known from the region is probably that from St Nicholas' church, Sevenoaks. Approximately 400 Mediaeval/post-Mediaeval burials were recovered from this site, and although at time of writing phasing and dating of the remains has not yet been finalised, it appears that more than 100 burials are likely to date from the post-Mediaeval period.

The highest priority for this period is for skeletal remains for which biographical information such as name, age at death etc is available in the form of grave markers or coffin plates and can be associated with individual skeletons. About 25 such burials have been recovered from St Nicholas' church, Sevenoaks, but many more are needed. As stated above such assemblages aid the development of anthropological methodologies, and they also provide osteological information for a period for which the study of human remains has often been rather neglected.

Anderson (1990) found evidence for a reduction in adult stature in the post-Mediaeval period among some skeletons from Rochester Cathedral, a pattern which may have been indicative of poorer nutrition in this period than in Mediaeval times. Consistent with this, studies of bone disease in remains from Canterbury (Anderson 1991) seem to suggest that health may have deteriorated during the post-Mediaeval period compared with preceeding Mediaeval times. However these conclusions are tentative, based

as they are on analysis of fairly small numbers of post-Mediaeval burials; it would be useful to investigate further the possibility of a deterioration in health and/or nutrition in post-Mediaeval urban centres.

4. Summary

Burials from the Neolithic and Bronze Ages are few; more bones are needed to permit meaningful analysis of anthropological data from these periods. More burials are available from the Iron Age, but the majority are cremations. The priority for this period is the acquisition of further inhumations.

In comparison with neighbouring regions, burials from Romano-British sites are few and the corpus is dominated by cremations; more material is needed, particularly inhumations.

Material is more plentiful from Anglo-Saxon contexts, but the corpus is heavily biased towards the early Saxon period (although there are few early Saxon cremations). There is a need for more burials from middle and late Saxon sites and, to a lesser extent, for cremations from the early Saxon period.

Remains from the Mediaeval period are fairly plentiful, both compared with other regions and with other periods in the SE. However, the corpus is biased towards urban sites, with about half the total coming from excavations in Canterbury. The priority is for material from smaller settlements.

As is the case in most areas of England, less work has been done on post-Mediaeval human remains than for bones from the other historical periods, although some there are some important post-Mediaeval collections from the region. A particular priority for this period is for material in which biographical information such as name, age at death are known (from coffin plates) and can be associated with individual skeletons.

In the section on quality of assemblage the value of large, well preserved assemblages of inhumations was stressed; the need for these for all periods for which they are likely to be found (i.e. from the Romano-British period onwards) is great; less than 30 well excavated, reasonably well preserved collections of more than 300 inhumations are known nationally outside London, and still fewer have been adequately reported on.

5. Gazetteer of sites in the SE for which human bone reports have been prepared.

PALAEOLITHIC
Boxgrove, West Sussex; **single tibia**; Roberts et al. (1994)
Swanscombe, Kent; **single skull**; Ovey (1964).

NEOLITHIC
Addington, Chestnuts megalithic tomb; Kent; **11 Crem**; Barfield, L. (1961) AC 76: 1-57
Alfriston; East Sussex; **1 Inh**; O'Connor, T.P. (1975) PPS 41: 119-142
Halling TQ 705 644; Kent; **1 Inh**; Oakley, K. et al. (1967) AC 82: 218-220
North Marden; West Sussex; **2 Inh**; Browne, S. (1966) PPS 52: 31-51
Offham Hill; East Sussex; **3 Inh**; O'Connor, T.P. (1977) PPS 43: 201-241
Ramsgate, Nethercourt Farm; Kent; **2 Inh**; Wells, C. (1966) AJ 66:24
Shepperton, Staines Road Farm; Surrey; **2 Inh**; Mays, S.A. & Steele, J. (1992) AML 62/92
Staines TQ 024 726; Surrey; **1 Inh**; **1 Crem**; Camps, F.E., Chandra, H. & Dawes, J.D. (1967) PPS 53: 23-128
Whitehawk TQ 331 048; East Sussex; **8 Inh**; Tildesley, M.L. (1934) AJ 14: 99-113

BRONZE AGE
Black Patch; East Sussex; **1 Inh**; **3 Crem**; O'Connor, T.P. (1982) PPS 48: 321-400
Burpham, Friday's Church; West Sussex; **1 Inh**; **1 Crem**; Ratcliffe-Densham, H.B.A. (1980) SAC 118: 171-182
Canterbury, Bridge by-pass; Kent; **13 Crem**; O'Connor, T.P. (1975) AML 1921.
Chertsey, Abbey Meads; Surrey; **1 Inh**; Henderson, J. (1988) AML 70/88
Eastbourne, Cornish Farm; East Sussex; **1 Inh**; Drewett, P. (1992) SAC 130: 237 (brief notes on bones).
Folkestone, Cherry Garde Hill; Kent; **1 Inh**; Cave, A.J.E. (1943) AC 56: 28-33
Gally Hills; Surrey; **1 Inh**; Price-Williams, D. & Barford, J. (1974) LA 2: 127-130 (notes on bones)
Itford Hill, Beddingham TQ 4467 0541; East Sussex; **12 Crem**; Ratcliffe-Densham, H.B.A. (1972) SAC 110: 70-117
Manston; Kent; **1 Inh**; Perkins, D. & Gibson, A. (1990) AC 108: 11-27 (notes on bones)
Margate East Northdown TR 3850 7045; Kent; **2 Inh**; Henderson, J. (1987) AC 104: 287-289
Otford TQ 5335 6005; Kent; **1 Crem**; Zivanovic, S. (1975) AC 91: 185-187
Pyecombe TQ 2834 1165; West Sussex; **1 Inh**; Sanderson, E. (1991) SAC 129: 18-20
Upper Halling, Pring's Quarry TQ 696 648; Kent; **2 Inh**; Gretton, S. (1985) AC 102: 129-133
Walmer TR 3740 5008; Kent; **1 Inh**; Willson, J. (1984) KAR 26-30 (brief notes on bones)
West Heath; West Sussex; **6 Crem**; Wilkinson, L. (1985) SAC 123: 35-60

IRON AGE
Bishopstone; East Sussex; **3 Inh**; Wilkinson, P.F. & Concannon, R. (1977) SAC 115: 1-299
Glynde; East Sussex; **2 Inh**; Burstow, G.P. (1962) Notes on file at Sussex Archaeological Society Library, Lewes
Harting Beacon; West Sussex; **2 Inh**; Bedwin, O. (1979) SAC 117: 21-26 (notes on bones), see also SAC 116 (1978): 240
Highdown Hill; West Sussex; **1 Inh**; Trevor, J.C. (1940) SAC 81: 173-203
Manston; Kent; **1 Inh**; Perkins, D. & Gibson, A. (1990) AC 108: 11-27 (notes on bones)
Stone; Kent; **2 Crem**; Cotton, M.A. & Richardson, K.M. (1941) PPS 7: 134-141 (notes on bones)
The Trundle; West Sussex; **2 Inh**; Parsons, F.G. (1929) SAC 70: 32-65

IRON AGE/ROMANO-BRITISH
Farningham; Kent; **1 Crem**; Osborne, C. (1988) AML 109/88

ROMANO-BRITISH
Canterbury, Cranmer House, London Road; Kent; **1 Inh**; **53 Crem**; Garrard (1987)
Canterbury, 8 New Street; Kent; **3 Inh**; Garrard, P. (1978) AC 114: 149-51
Canterbury, North Lane; Kent; **2 Inh**; **1 Crem**; Anderson, T. in Canterbury Archaeological Trust (1991)
Chichester Eastgate; West Sussex; **13 Inh**; Barnes, H. in Down (1981)
Chichester, St Pancras; West Sussex; **9 Inh**; **317 Crem**; Ginns 1971 (report on inhumations only)
Chichester Westgate; West Sussex; **35 Inh**; Foden (1993)
Crundale Limeworks; Kent; **8 Crem**; Maye, S.A. (1969) AML 68/89 & Osborne, C. (1988) 99/88
Darenth Roman Villa; Kent; **2 Inh**; Harman, M. & Keepax, C. in Philp (1973)
Ewehurst; Surrey; **7 Inh**; Winbolt, S.E. (1931) SyAC 40: 118-120 (notes on bones)
Holborough, Snodland; Kent; **1 Inh**, **3 Crem**; Whillis, J. & Shuttleworth, C.W.T. (1954) AC 68: 1-61
Ickham; Kent; **2 Inh**; Bayley, J. & Keepax, C. (1974) AML 1663.
Isle of Grain, Clubb's Pit; Kent; **42 Inh**; **1 Crem**; Cameron, A. (1985) report on file at AML
Lullingstone TQ 5465; Kent; **5 Inh**; Cave, A. & Simpson, K. in Meates, G.W. (1987)
Merrow Down, Guildford; Surrey; **1 Inh**; Keith, A. (1912) SyAC 25: 139-140
Northbourne TR 329 527; Kent; **11 Inh**; **3 Crem**; Harman, M. (1978) KAR 52: 41-43
Richborough, Roman Fort; Kent; **1 Inh**; Morant, G.M. & Humphreys, J. in Bushe-Fox (1932)
Rochester, George Lane; Kent; **1 Inh**; Hayes, J.P. (1981) AC 97: 95-136
Slonk Hill, Shoreham TQ 226 065; West Sussex; **3 Inh**; Shepherd, P. (1978) SAC 116: 69-141
Snodland; Kent; **1 Inh**; Keith, A. & Ward, G. (1934) AC 46: 202-203
Southfleet; Kent; **1 Inh**; Williams, F.A.O. (1956) AC 70: 206
Staines, Friends Burial Ground; Surrey; **1 Inh**; Chapman, J., Wolfe, S. & Woodadge, W. in Crouch, K. & Shanks, S.A. (1984)
Wiggonholt TQ 0646 1802; West Sussex; **2 Crem**; Ratcliffe-Densham, H.B.A. (1974) SAC 112: 97-151

ANGLO-SAXON
Apple Down, Compton; West Sussex; **126 Inh**; **56 Crem**; Harman, M. (1990).
Ashtead, former Goblin Works TQ 182 567; Surrey; **36 Inh**; Waldron, T. (1989, 1992) SyAC 79: 67-99, 81: 1-18
Banstead, Preston Have; Surrey; **1 Inh**; Cullen, R. report on file at AML
Barham, Wick Wood TR 2235 4915; Kent; **3 Inh**; Harman, M. (1984) KAR 77: 169
Bishopstone; East Sussex; **118 Inh**; **6 Crem**; Wilkinson, P.F. & Concannon, R. (1977) SAC 115: 1-299 (brief notes on 83 of the burials only)
Brighton, Stafford Road; East Sussex; **3 Inh**; Armitage, P. (1988) SAC 126: 31-52
Darenth TQ 565 721; Kent; **3 Inh**; Cheetham, H.D. (1980) AC 96: 305-320
Darenth TQ 565 729; Kent; **7 Inh**; Cameron, A. (1990) AC 108: 35-63
Dover, Albany Place; Kent; **4 Inh**; Osborne, C. (1988) AML 101/88
Dover Buckland; Kent; **160 Inh**; Powers & Cullen (1987)
Dover, Town Centre; Kent; **7 Inh**; Osborne, C. (1988) AMLs 102/88 & 103/88
Gally Hills; Surrey; **2 Inh**; Waldron, T. & Waldron, G. (1988) LA 5: 443-445
Eastry; Kent; **34 Inh**; Rega, E. (1994) Report on file at Dept of Prehistory & Archaeology, Univ. of Sheffield
Eccles; Kent; **132 Inh**; Manchester (1984)
Fingleham TR 3256 5343; Kent; **243 Inh**; Dunning, G.C. (1956) MA 2: 1-71 (summary report on 38 skeletons)
Fishbourne Roman Palace; West Sussex; **4 Inh**; Cunliffe (1971) (notes on bones)
Guildown, Guildford; Surrey; **223 Inh**; Keith, A. (1931) SyAC 34: 1-50 (very brief notes on bones)
Highdown Hill; West Sussex; **1 Inh**; Trevor, J.C. (1940) SAC 81: 173-203
Holborough; Kent; **36 Inh**; Denston, C.B. & Noble, H.N. (1956) AC 70: 84-141
Jevington TQ 5665 0315; East Sussex; **8 Inh**; Ratcliffe-Densham, H.B.A. (1969) SAC 107: 126-134
Lyminge; Kent; **44 Inh**; Joseph, J. (1955) AC 69: 1-40
Margate, Half Mile Ride; Kent; **20 Inh**; Perkins, D.R.J. (1987) AC 104: 219-236 (notes on bones)
Monkton TR 2910 6550; Kent; **34 Inh**; Denston, C.B. (1974) AC 84: 49-89 (report on 22 skeletons), AC 101: 83-114 (notes on rest)
Ocklynge Hill, Eastbourne TV 595 068; East Sussex; **20 Inh**; O'Connor, T.P. (1980) SAC 118: 231-244
Orpington; Kent; **29 Inh**; **16 Crem**; Glynn, B.D. & Carter, C. (1968) AC 83: 125-150
Polhill, Dunton Green TQ 5504 1590; Kent; **125 Inh**; Miles, A.E.W. et al. in Philp (1973) (125 burials); Cameron, A. (1985) AML 4635 (5 burials), Rega, E. (1994) re-examination of 44 burials report on file at Dept of Prehistory & Archaeology, University of Sheffield.
Ramsgate TR 355 651; Kent; **2 Inh**; Millard, L. (1969) AC 84: 9-30
Sarre; Kent; **20 Inh**; Barnacle, R., Gibbs, J. & Hammond, L. (1992) AC 110: 101-106

MEDIAEVAL
Angmering, Church of St Nicholas; West Sussex; **14 Inh**; O'Connor, T.P. (1975) SAC 113: 16-34
Battle Abbey; Sussex; **8 Inh**; Bayley, J. (1979, 1981) AML 2907 & AML 3249.
Bidlington, St Mary Magdelene TQ 178 103; West Sussex; **9 Inh**; Ratcliffe-Densham (1964)
Canterbury Cathedral; Kent; **1 Inh**; Cave, A.J.E. & Trevor, J.C. (1951) AC 64: 112-115
Canterbury St Augustines Abbey; Kent; **51 Inh**; Thorn, J.C. in Sherlock & Woods (1988); Bayley, J. (1977, 1979) AMLs 2175, 2883 & 2884; Powell, F. (1979) AML 2901
Canterbury, St George's Street, Austin Friars; Kent; **4 Inh**; Roberts, D.F. in Frere & Stow (1983)
Canterbury, St Peters Methodist School; Kent; **12 Inh**; Anderson, T. in Canterbury Archaeological Trust (1991)
Chichester, Leper Hospital of St James & St Mary Magdelene; West Sussex; **400 Inh**; full bone report yet to appear but see Magilton & Lee (1989); Lee, F. & Magilton, J. (1989)
Coulsdon, Church of St John the Evangelist; Surrey; **2 Inh**; Shepherd, M. & Cripp, N. (1977) SyAC 71: 101-110
Guildford Blackfriars; Surrey; **117 Inh**; Henderson (1984).
Lewes Greyfriars; East Sussex; **55 Inh**; Browne, S. (1994) SAC
Nonsuch Palace, Cheam (Cuddington Church); Surrey; **108 Inh**; James, P.M.C. & Miller, W.A. BDJ 128: 391-6 (report on teeth of 23 children only)
Ospringe, Maison Dieu; Kent; **21 Inh**; Bailey, J. (1979) AC 105: 81-184
Rochester Cathedral; Kent; **25 Inh**; Anderson, T. (1990) AC 108: 91-151.
Rye Austin Friars; East Sussex; **10 Inh**; Gallanaugh, S.C. & Howard, R.B. in Clements, J. (1991)
Stonar, Sandwich; Kent; **147 Inh**; Bayley, J. & Eley, J. (1975) AML 1903.
Swingfield, St John's Chapel; Kent; **3 Inh**; Martin-Hoogeverf, A. (1978) AML 2547
Thannington, St Nicholas' Church; Kent; **3 Inh**; Anderson, T. (1991) AC 109: 308-311
Wallington, 32 Burleigh Avenue TQ 2852 6501; Surrey; **2 Inh**; Powers, R., Molleson, T.I. & Price, J.L. (1980) SyAC 72: 77-82

MEDIAEVAL/POST-MEDIAEVAL
Hythe, St Leonard's; Kent; **4000 Inh**; Parsons (1908); Stoessinger & Morant (1932) (mainly craniometric data)
Rochester Cathedral; Kent; **3 Inh**; Anderson, T. (1990) AC 108: 91-151.

POST-MEDIAEVAL
Canterbury, St Dunstan's Church - the Roper Chantry; Kent; **8 Inh**; Garrard, P.H. (1980) AJ 60(2):227-246
Canterbury, St George's Church; Kent; **92 Inh**; Anderson, T. in Canterbury Archaeological Trust (1991) & forthcoming
Rochester Cathedral; Kent; **35 Inh**; Anderson, T. (1990) AC 108: 91-151.

UNCERTAIN DATE
Strood, Newark Yard; Kent; 4 Inh; Powers, R. report on file at AML

Notes: information appears in the following order - site, county, number of burials (Inh=inhumations, Crem=cremations), author of bone report, (where the words 'notes on bones' appear following the reference to the report no specialist is credited with examining the bones. In such cases the name which appears is the general author of the site report), reference to report. When a report appears in a periodical the year of publication, journal title, volume and page numbers are given in the gazetteer entry. The following abbreviations are used for journal titles: A=Archaeologia AC=archaeologia Cantiana AJ=The Antiquaries Journal AML=Ancient Monuments Laboratory Reports BDJ=British Dental Journal KAR=Kent Archaeological Review LA=London Archaeologist MA=Mediaeval Archaeology PPS=Proceedings of the Prehistoric Society SAC=Sussex Archaeological Collections SyAC=Surrey Archaeological Collections
Page references are generally those of the entire excavation report not those of the bone report.
When the bone report appears in an edited volume or monograph, or if it has already been referred to in the main body of the text, then it is cited in the gazetteer and the full reference appears in the bibliography.

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Key to Figure 5

1=North Marden
2=Bury Hill
3=Staines
4=Shepperton, Staines Road Farm
5=Whitehawk
6=Offham Hill
7=Alfriston
8=Addigton, Chestnuts Megalithic Tomb
9=Halling
10=Ramsgate, Nethercourt Farm

Key to Figure 6

1=West Heath

2=Burpham, Friday's Church
3=Chertsey, Abbey Meads
4=Gally hills
5=Mile Oak, Brighton By-Pass
6=Pyecombe
7=Itford Hill
8=Black Patch
9=Eastbourne, Cornish Farm
10=Otford
11=Upper Halling, Pring's Quarry
12=Canterbury, Bridge By-Pass
13=Folkestone, Cherry Garde Hill
14=St Margaret's Bay
15=Walmer
16=Manston
17=Broadstairs, South Dumpton Down
18=Margate, East Northdown

Key to Figure 7

1=Harting Beacon
2=The Trundle
3=Westhampnett
4=Highdown Hill
5=Glynde
6=Bishopstone
7=Stone
8=Canterbury, St John's Lane
9=Canterbury, Marlowe Theatre
10=Sarre
11=Alkham
12=Mill Hill, Deal
13=Manston

Key to Figure 8

1=Chichester, Westgate
2=Chichester, Northgate
3=Chichester, St Pancras
4=Chichester, The Hornet
5=Chichester Eastgate
6=Westhampnett
7=Eashing
8=Merrow Down
9=Egham, Thorpe Lea Nurseries
10=Staines, Friends Burial Ground
11=Wiggonholt
12=Washington
13=Slonk Hill
14=Sanderstead
15=Titsey, Tatfield Road
16=Beddingham Roman Villa
17=Lullingstone Roman Villa

18=Dartford, East Hill
19=Dartford, Spital Street
20=Darenth Roman Villa
21=Southfleet
22=Holborough
23=Snodland
24=Rochester, George Lane
25=Cliffe
26=Isle of Grain, Clubb's Pit
27=Crundale Limeworks
28=Canterbury, Cranmer House
29=Canterbury, New Street
30=Canterbury, North Lane
31=Canterbury, Diocesian House
32=Canterbury, Adelaide House
33=Canterbury, Rosemary Lane
34=Ickham
35=Hawkinge
36=Dover, Southgate Street
37=Whitfield
38=Northbourne
39=Richborough
40=Springhead Roman Temple
41=Reculver Roman Fort

Key to Figure 9

1=Apple Down, Compton
2=Fishbourne Roman Palace
3=Highdown Hill
4=Guildown, Guildford
5=Ashtead, former Goblin Works
6=Banstead, Preston Hawe
7=Gally Hills
8=Brighton, Stafford Road
9=Saxonbury, Lewes
10=Bishopstone
11=Jevington
12=Ocklynge Hill, Eastbourne
13=Orpington
14=Polhill, Dunton Green
15=Darenth TQ 565 721
16=Darenth TQ 565 729
17=Holborough
18=Eccles
19=Milton
20=Canterbury, Stour Street
21=Kingston Down
22=Barham, Wick Wood
23=Lyminge
24=Dover Buckland
25=Dover, Adrian Street
26=Dover, Town Centre
27=Dover, Albion Place

28=Finglesham
29=Eastry
30=Coombe, Woodnesborough
31=Sarre
32=Monkton
33=Margate, Half Mile Ride
34=Ozengell
35=Ramsgate
36=Way

Key to Figure 10

1=Chichester, Hospital of St John & St Mary Magdelene
2=Chichester, East Street
3=Guildford Blackfriars
4=Angmering, Church of St Nicholas
5=Bidlington, Hospital of St Mary Magdelene
6=Nonsuch Palace, Cheam (Cuddington Church)
7=Wallington, Burleigh Avenue
8=Coulsdon, Church of St John the Evangelist
9=Lewes Greyfriars
10=Battle Abbey
11=Rochester Cathedral
12=Rye Austin Friars
13=Ospringe, Maison Dieu
14=Thannington, St Nicholas' Church
15=Canterbury Cathedral
16=Canterbury, St Augustine's Abbey
17=Canterbury, Austin Friars
18=Canterbury, St Peter's Methodist School
19=Canterbury, St Gregory's Priory
20=Canterbury, North Lane
21=Canterbury, St Gabriel's
22=Canterbury, St Mary Bredin
23=Lyminge
24=Hythe, St Leonard's Church
25=Swingfield, St John's Chapel
26=Dover, St Martin le Grand
27=Stonar
28=Sevenoaks, St Nicholas' Church

Key to Figure 11

1=Sevenoaks, St Nicholas' Church
2=Rochester Cathedral
3=Minster, Isle of Sheppey
4=Canterbury, St Dunstan's Church, The Roper Chantry
5=Canterbury, St George's Church

Notes to Figures 5-11: sites included here are those which appear in the gazetteer and also unpublished material known to the

writers. Sites where the condition of the bones is so poor that little anthropological data can be gleaned are omitted, as are those where there is no bone report and the remains were not kept for study.

Acknowledgements

Thanks are due to the archaeological units and museums who provided information on skeletal remains in their care. Thanks are also due to Amanda Chadburn and Sebastian Payne for comments on earlier drafts of this paper.

Figure 1: Geological sketch map of the south-eastern counties (after Rayner 1976, Fig. 66)

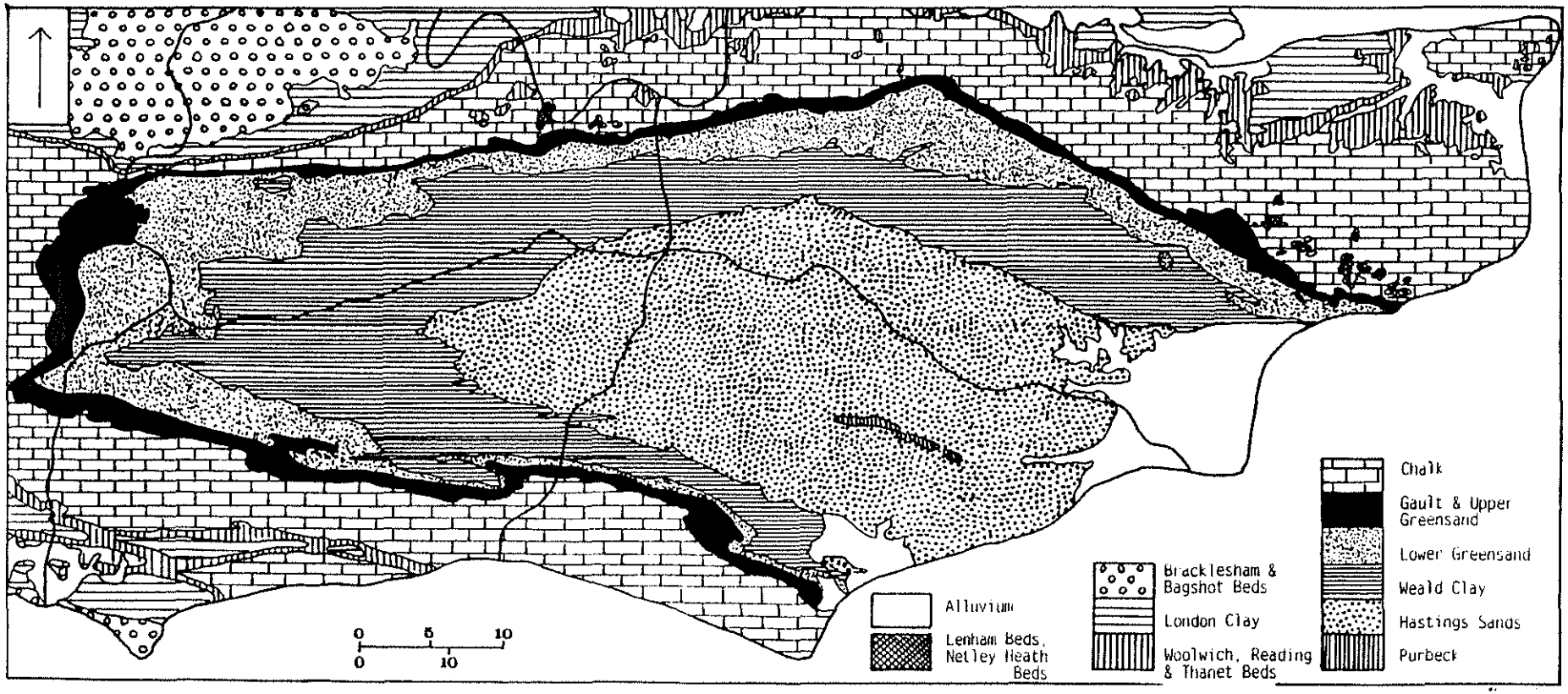

Figure 2: Numbers of burials from different archaeological periods in the south-eastern counties of England

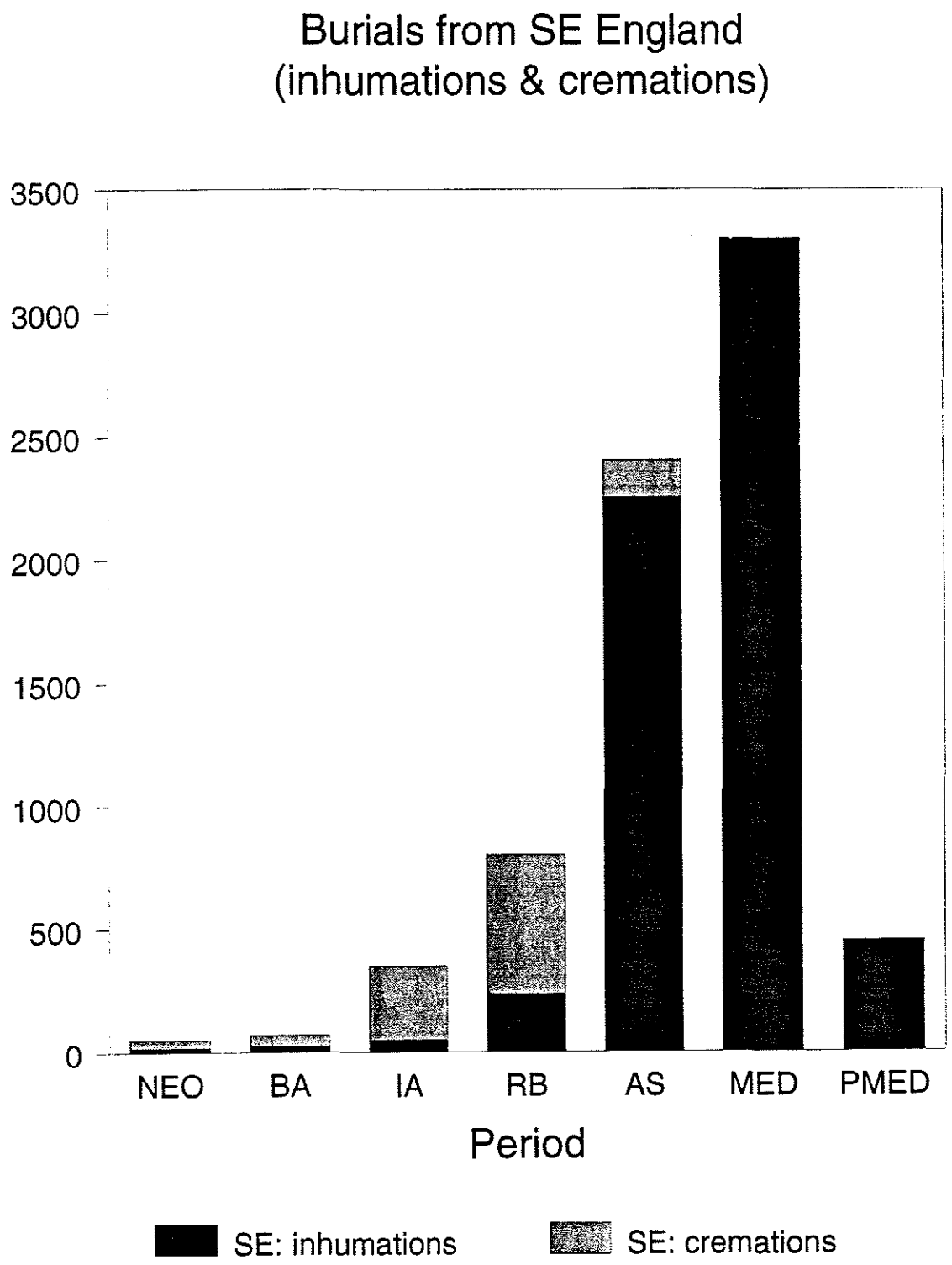

Figure 3: Numbers of burials from different archaeological periods in Wessex

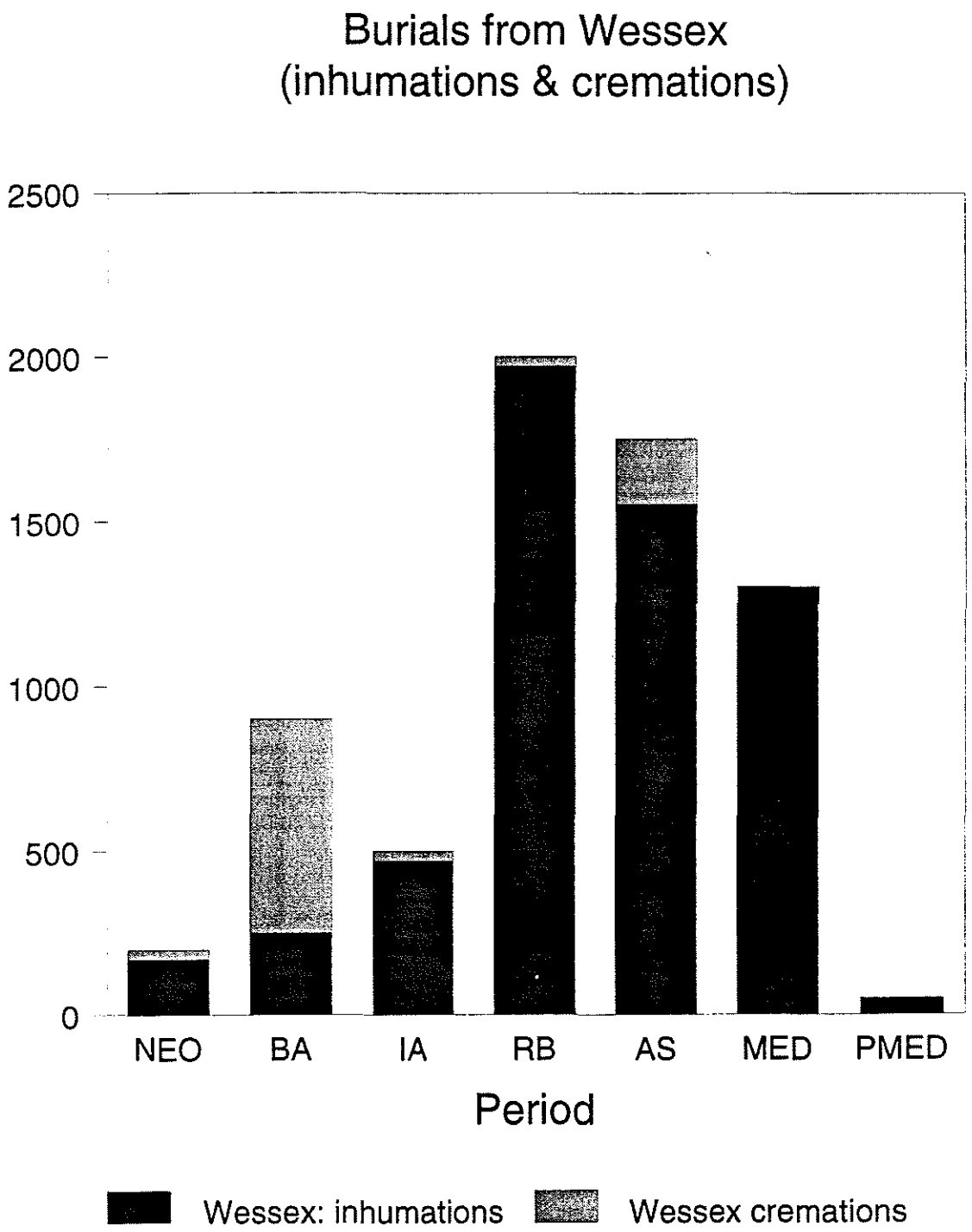

Figure 4: Numbers of burials from different archaeological periods in East Anglia

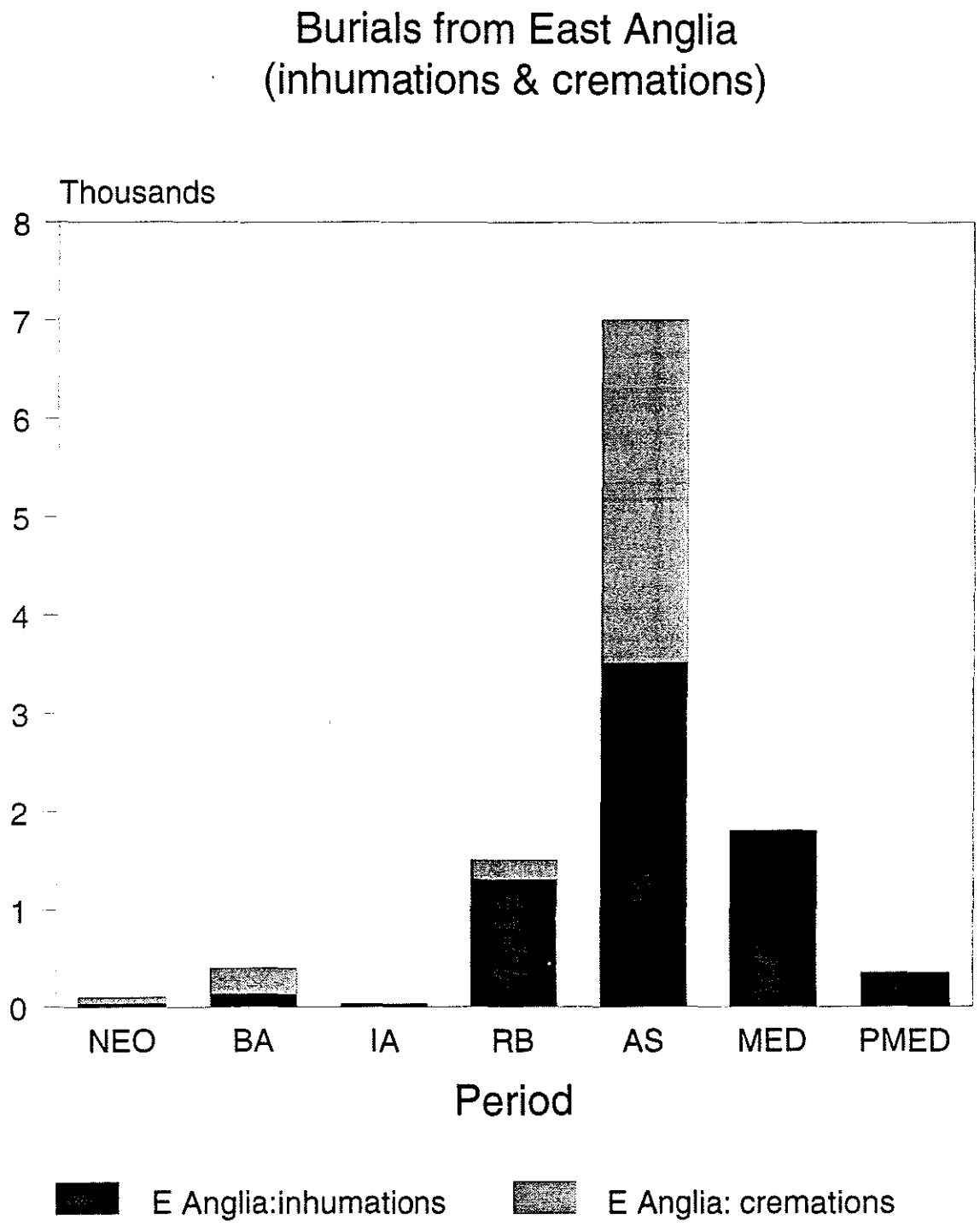

Figure 5: Locations of some sites yielding Neolithic human remains in the SE

Figure 6: Locations of some sites yielding Bronze Age human remains in the SE

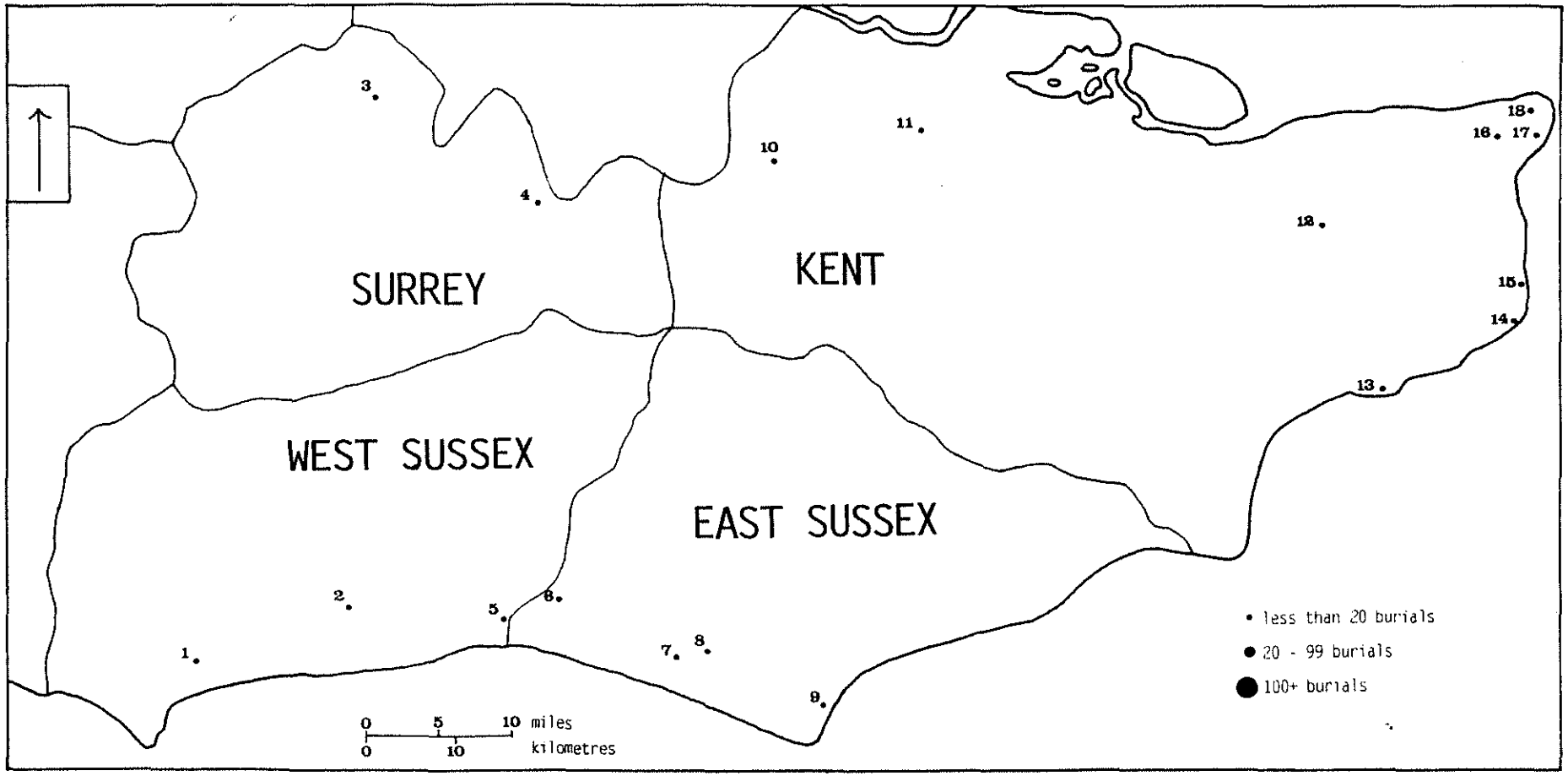

Figure 7: Locations of some sites yielding Iron Age human remains in the SE

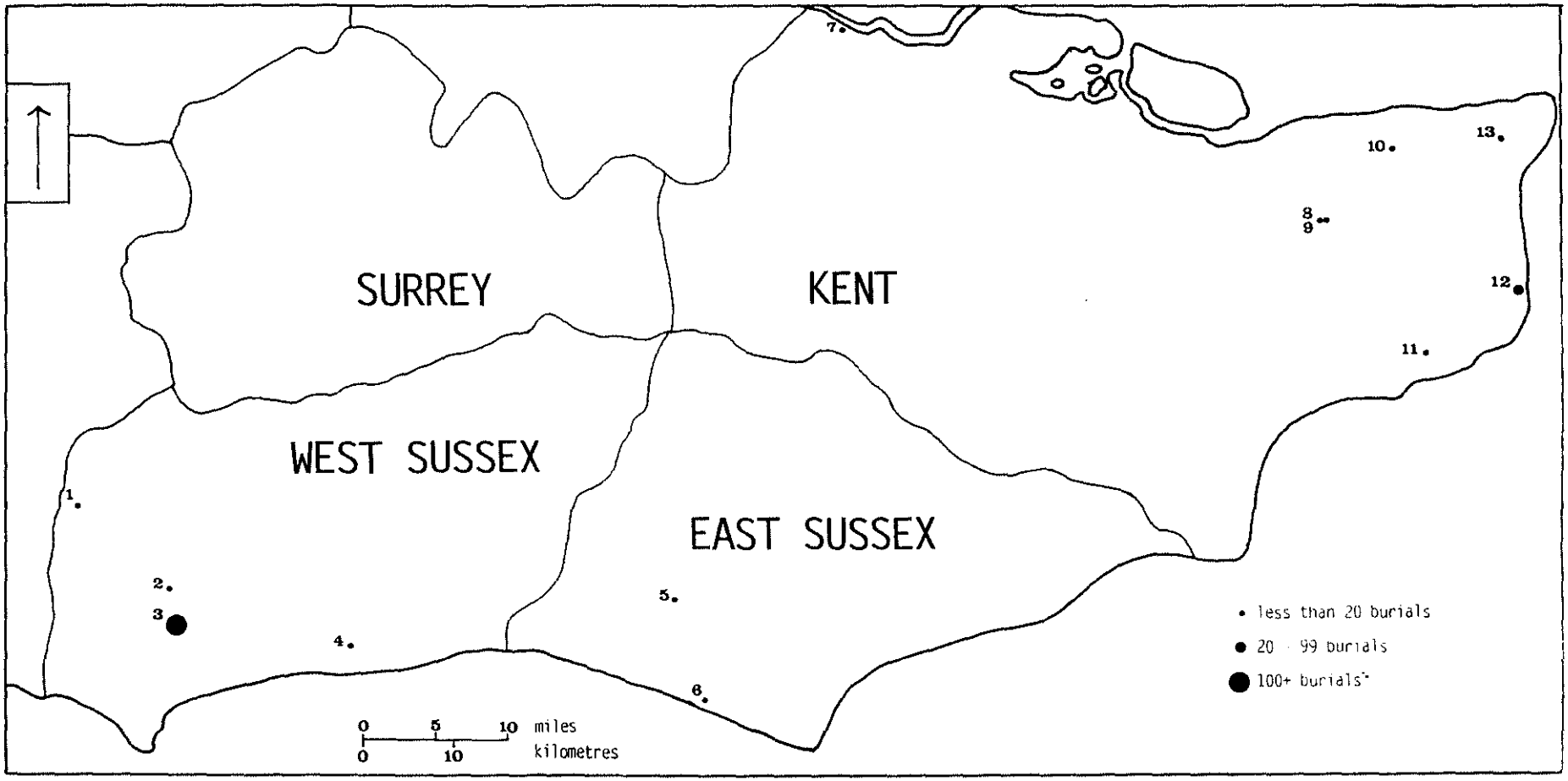

Figure 8: Locations of some sites yielding Romano-British human remains in the SE

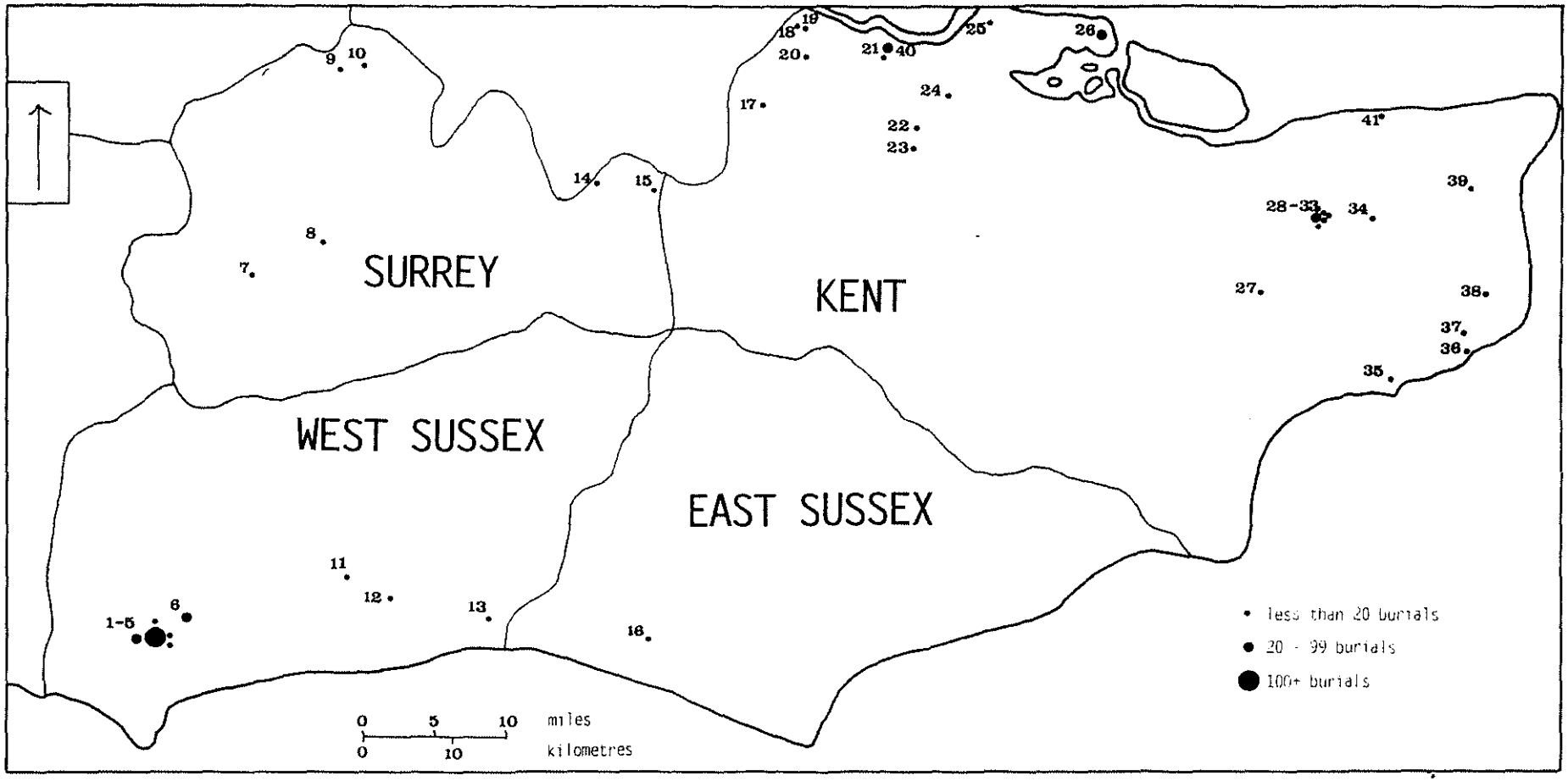

Figure 9: Locations of some sites yielding Anglo-Saxon human remains in the SE

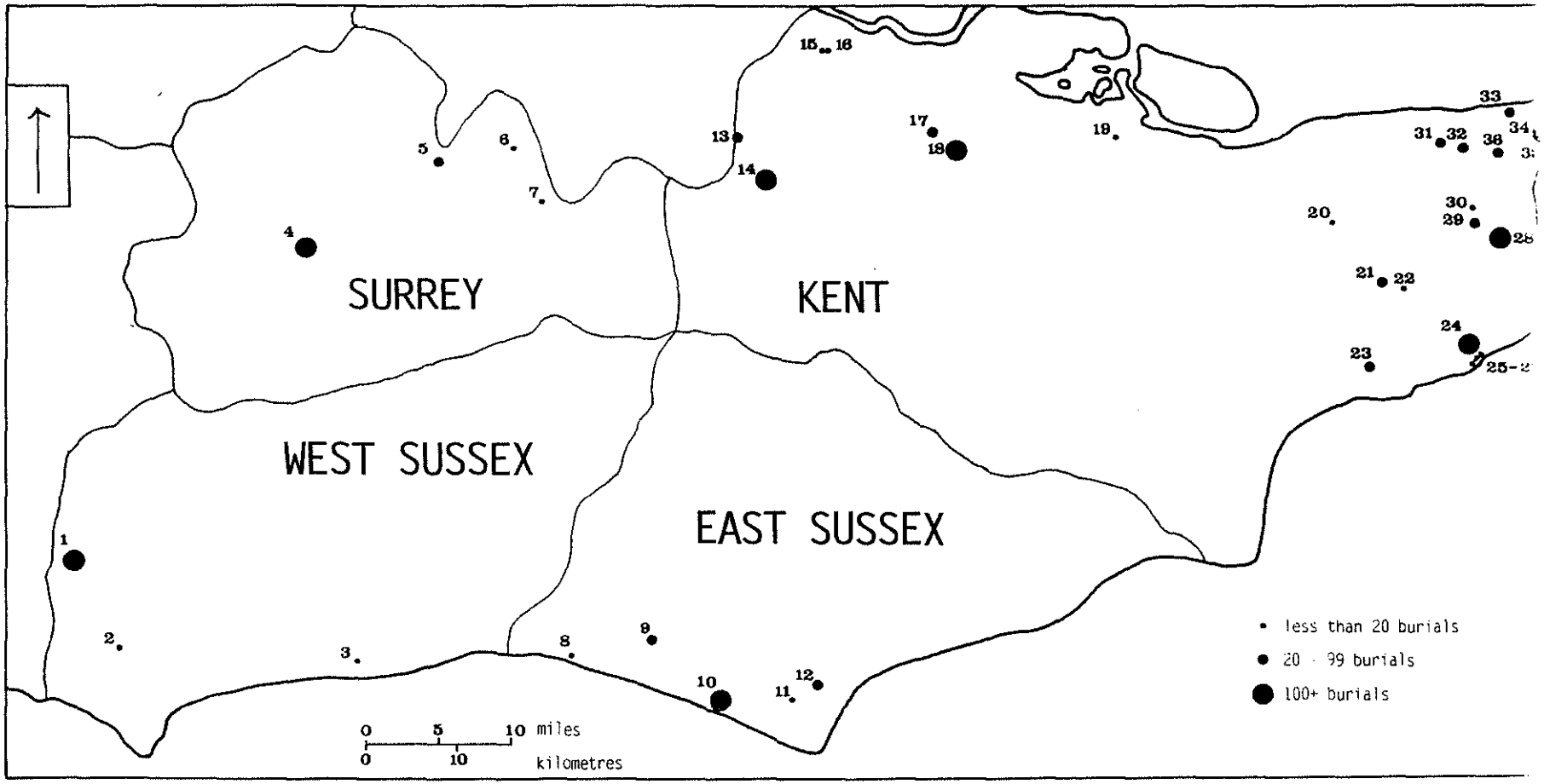

Figure 10: Locations of some sites yielding Mediaeval human remains in the SE

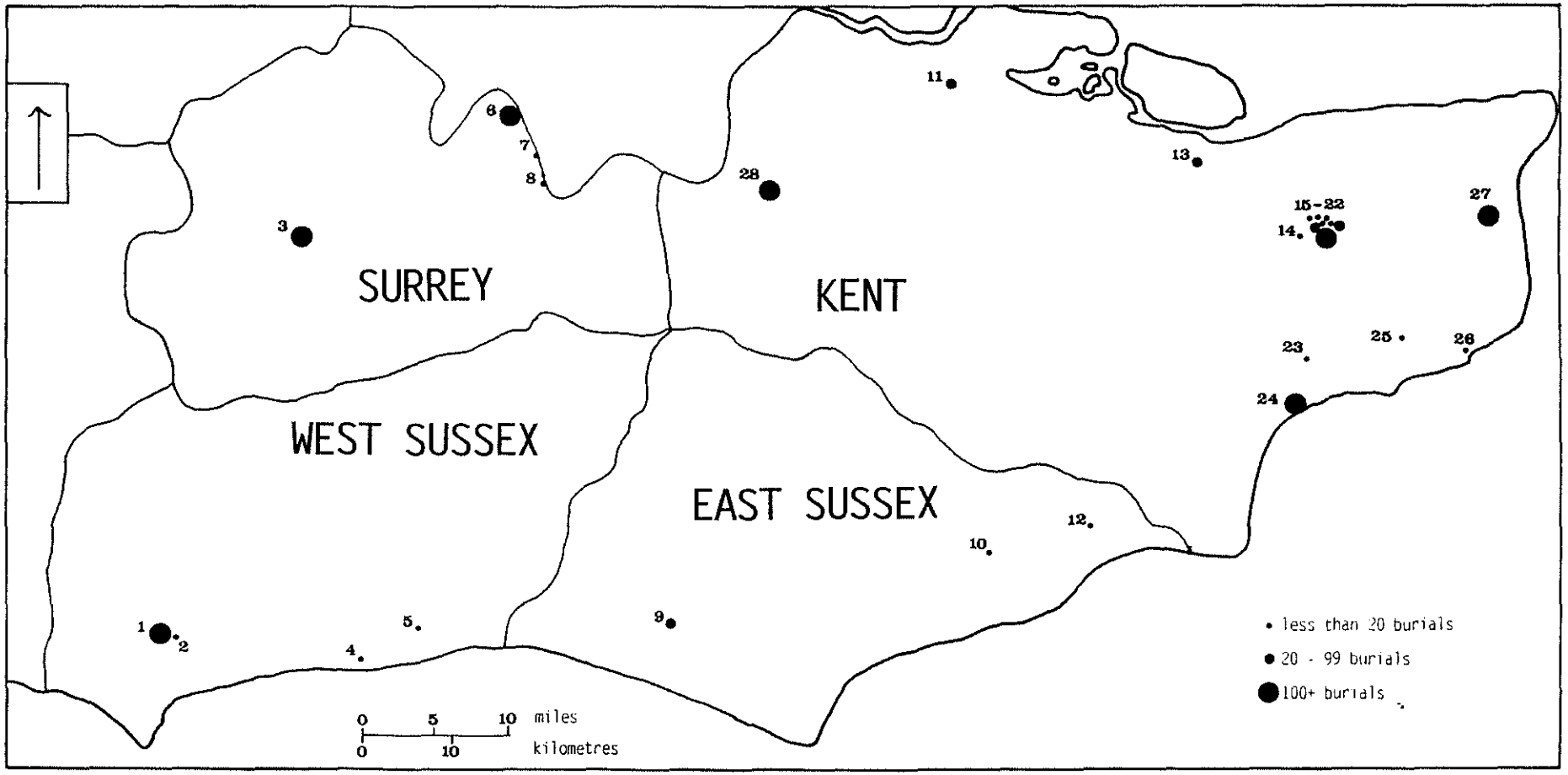

Figure 11: Locations of some sites yielding Post-Mediaeval human remains in the SE