

12-1-2011

Integration versus Apartheid in post-Roman Britain: a Response to Thomas et al. (2008)

John E. Pattison

School of EIE - Applied Physics, University of South Australia, Mawson Lakes, Adelaide, SA, Australia, 5095,
john.pattison@unisa.edu.au

Recommended Citation

Open access pre-print, subsequently published as Pattison, John E. (2011) "Integration versus Apartheid in post-Roman Britain: a Response to Thomas et al. (2008)," *Human Biology*: Vol. 83: Iss. 6, Article 9.
Available at: http://digitalcommons.wayne.edu/humbiol_preprints/18

This Open Access Preprint is brought to you for free and open access by the WSU Press at DigitalCommons@WayneState. It has been accepted for inclusion in Human Biology Open Access Pre-Prints by an authorized administrator of DigitalCommons@WayneState.

Integration versus Apartheid in post-Roman Britain: a Response to Thomas *et al.* (2008)

John E. Pattison,
School of EIE - Applied Physics, University of South Australia,
Mawson Lakes, Adelaide, SA, Australia, 5095.

john.pattison@unisa.edu.au

Tel: +61 8 8302 3043; Fax: +61 8 8302 3389

ABSTRACT

The genetic surveys of the population of Britain conducted by Weale et al. and Capelli et al. produced estimates of the Germani immigration into Britain during the early Anglo-Saxon period, c.430-c.730. These estimates are considerably higher than the estimates of archaeologists. A possible explanation suggested that an apartheid-like social system existed in the early Anglo-Saxon kingdoms resulting in the Germani breeding more quickly than the Britons. Thomas et al. attempted to model this suggestion and showed that it was a possible explanation if all Anglo-Saxon kingdoms had such a system for up to 400 yrs. I noted that their explanation ignored the probability that Germani have been arriving in Britain for at least the past three millennia, including Belgae and Roman soldiers, and not only during the early Anglo-Saxon period. I produced a population model for Britain taking into account this long-term, low-level migration that showed that the estimates could be reconciled without the need for introducing an apartheid-like system. In turn, Thomas et al. responded criticizing my model and arguments, which they considered persuasively written but wanting in terms of methodology, data sources, underlying assumptions and application. Here, I responds in detail to those criticisms, and argue that it is still unnecessary to introduce an apartheid-like system in order to reconcile the different estimates of Germani arrivals. A point of confusion is that geneticists are interested in ancestry, while archaeologists are interested in ethnicity: it is the bones, not the burial rites, which are important in the present context.

Key words: Britons, Germani, Belgae, Anglo-Saxons, migrations

INTRODUCTION

In an attempt to account for the apparent discrepancy between archaeological estimates of the scale of Germanic migration into post-Roman Britain ($\leq 0.5\%$ to 12% replacement in an indigenous population of about two million, Härke 2002) and Y-chromosome-based estimates of the contribution of male Germanic immigrants to the modern English gene pool ($50\text{-}100\%$ replacement, Weale et al. 2002; and 54% mean replacement, Capelli et al. 2003), Woolf (2004) suggested that apartheid-like systems in early Anglo-Saxon kingdoms may have caused immigrant Germanic populations to grow more rapidly than suppressed indigenous British populations. Thomas et al. (2006) modeled that suggestion using computer simulation of differential reproductive success with limited intermarriage between distinct ethnic groups on the spread of genetic variants, and found that it was necessary for all Anglo-Saxon kingdoms to impose apartheid-like systems for up to 15 generations (c.400 yrs) in order to account for the different estimates. Together with accepting certain historical data, Thomas et al. concluded that the Germanic genetic input into Britain was only significant during the early Anglo-Saxon period (c.450 - c.850). They also presented four arguments to support their conclusion: two theoretical arguments based on the migration context

and the relative sizes of the two groups, and two evidential arguments based on textual and skeletal evidence. In Pattison (2008), I critiqued three of these four arguments and, by applying a feasible alternative historical population model for Britain, showed that the invention of such a geographically and temporally extensive apartheid-like system among all warring disparate Anglo-Saxon kingdoms was not necessary. I showed that a long-term low-level of immigration from northwest Europe to Britain during the last two or more millennia had a cumulative effect that was greater than that predicted by Thomas et al. (2006). My estimates of the percentage of people of pre-Roman indigenous descent in Britain in 1950 (64%) compared favorably with the geographically-weighted mean value for all Britain estimated by Capelli et al. (59%). These results are in good agreement considering the assumptions required by both estimation methods. In addition, my estimates of the net percentage of immigrants and their descendants for the entire early Anglo-Saxon period (c.6.2%) compared favorably with Oppenheimer's (2006) estimates for England (5.5%) and for all of Britain (3.8%). My corresponding estimated number of immigrants that arrived during this period was c.175,000, which is in the range commonly assumed for the elite replacement theory, and also within the range mentioned by Thomas et al. (2006). Thus, with these agreements, I concluded that the assumption of a prolonged extensive apartheid-like system was not required to reconcile Capelli et al.'s genetic results with the archaeological evidence from the early Anglo-Saxon period. Thomas et al. (2008) responded briefly to my arguments, which they considered persuasively written but wanting in terms of methodology, data sources, underlying assumptions and application. They first criticized the methodology employed, and then criticized four categories of my assumptions.

In this paper, the term 'Anglo-Saxon', except when it appears within quotations, refers to all people in an Anglo-Saxon kingdom who live an Anglo-Saxon culture irrespective of their ancestry, whether Germani or Britons. To use the term for only the Germani, which is common in the literature, is to prejudice who these people were.

THE METHODOLOGY USED IN PATTISON'S (2008) POPULATION MODEL

Thomas et al.'s (2008) first and principal criticism was on the methodology used for the population reconstruction. I employed the back-projection method, which is an established method used by historical demographers for modeling past populations (see Pattison 2007). The population estimates used to construct the historical population curve for Britain were uncertain, but were the best available at the time (Pattison 2003, 2004). Thomas et al. pointed out that estimates of the population of early Britain vary considerably and implied that they are not sufficiently reliable for use in historical population models. However, according to Durand (1974), the various estimates of the historical populations of Europe agree within (what he calls the 'indifference range') about $\pm 1\%$ for 1970, $\pm 9\%$ for 1500 and $\pm 15\%$ for 1000 AD. Population estimates before 1000 AD are less certain. For instance, information in Millett (1990), cited in Thomas *et al.* (2008), allows the calculation of the variance-weighted mean population of 4th century Roman Britain as (2.46 ± 1.12) million, which represents an uncertainty of $\pm 46\%$. Although it now appears that the population of Roman Britain was possibly higher than this, the uncertainty is likely similar. Current estimates of historical populations at least give approximations that can be improved upon when more accurate estimates become available.

The Belgae contribution

My model was criticized for having a 5% contribution of Germanic DNA, due to the Belgae in the British population before Roman times. I considered this value as conservative because it did not account for possible earlier Germanic DNA input into Britain, such as from Neolithic immigrants from northwest Europe. Interesting, Thomas et al. (2008) ignored my comment that "according to Oppenheimer's (2006) interpretation of the same genetic evidence [as used by Thomas et al. 2006,

together with further DNA data for other continental populations], *most* of the immigration [of the Germani] could have occurred *before* the Anglo-Saxon period” (Pattison 2008). More recently, Amos et al. (2008), using the same dataset as did Oppenheimer, but using a completely different mathematical approach and dating method, came to the same conclusion as Oppenheimer, that Germani have been continuously migrating from northwest Europe to Britain during the past 10,000 yrs. Notably, Weale et al.’s genetic study indicated a mass migration event could have occurred anytime during the last 2,425 yrs. However, they then *assumed* that it occurred during the early Anglo-Saxon period, *viz.*, “Next we assumed that an Anglo-Saxon event did take place 60 generations ago (ie, 1,500 years BP assuming 25 years per generation)”. They acknowledged that their study did not conclusively prove that such a mass migration event had occurred, or if it did occur, whether it occurred within or outside the Anglo-Saxon period.

Stochastic versus deterministic modeling

Thomas et al. (2008) also criticized my model for being non-stochastic in nature. However, while I am well aware of statistical modeling methods, such as Monte Carlo simulations (e.g., Pattison et al. 2001, 2010), I see no benefit in using a stochastic approach for the present analysis. Deterministic models are not uncommon in population studies (e.g., Sivamurthy 1982); moreover, physical scientists are well aware that for large ensembles, stochastic models may be described either deterministically or statistically (e.g., Werndl 2009). For instance, gas systems may be described either deterministically using gas laws or statistically using the kinetic theory of gases (Ryan 1970).

The assertion by Thomas et al. (2008) that “there is no sound way of assessing the level of uncertainty in his results” is not correct. Methods for estimating uncertainties in deterministic models are well established (e.g., see Gregory et al. 2005). My model was based on estimates of an actual varying population, with varying numbers of surviving children in each successive generation who in turn had children, this approach is more realistic than the simple exponential population model used by Weale et al., or than randomly sampling the total number of individuals per generation moving from one ethnic group to another from a binomial distribution, as done by Thomas et al. (2006). In addition, in Thomas et al.’s (2006) model, after arguing that intermarriage between Britons and Germani was discouraged, and implying that if it did happen, it was considerably more likely that incoming Germani-men married indigenous British-women (represented by U in their model) than vice versa, (represented by D in their model), they assumed in their modeling that $U = D$. To be logically consistent, they should have used $U \gg D$ in their models. Their limited testing on asymmetric intermarriage rates using $1.5U$ and $0.5D$, and vice versa, was not sufficient (nor are their results presented in Thomas et al. 2006). Given these inconsistencies and omissions, the validity of their conclusions is questionable.

Relevance of Pattison’s model

Thomas et al. (2008) next queried the relevance of my model claiming that comparisons of my results with those of Capelli et al. are relevant only for c.1900, prior to the large immigration of Germani that occurred in Britain in the 20th century, in which case my result disagreed with that obtained by Capelli et al. However, using a generation length of 25 yrs (as also used by Weale et al., and within the range used by Thomas et al. 2006), with DNA sampling occurring c.2000 AD and considering two generations back, gives c.1950 as the time to compare the two models. However, in view of their comment that my results showed the largest number of arrivals occurring after 1900, Thomas et al. may be misinterpreting the population curve in Pattison (2008, Figure 1). It should be noted that both the number of Germani arrivals and the timing of their arrivals are equally important for determining the effects of Germani immigration on the genetic composition of the current British population; the earlier arrival Germanic genes would give these genes more time to spread

throughout Britain, including to the small towns that were surveyed by Capelli et al., even if individual Germani did not.

Origins of the arrivals in Britain

My results were criticized by Thomas et al. for not being more geographically specific as to the origins of the various immigrants and invaders into Britain. It is correct that my method cannot be more geographically specific than ‘northwest Europe’ as the place of origin of the Germani immigrants to Britain, due to lack of relevant data. Moreover, and in a similar vein, it is difficult to see how modern genetic surveys can claim high specificity as to the historical homelands of Germanic populations, particularly (but not only) after the upheavals of the Germanic Migration Period? For instance, according to the English monk Bede in the *Historia ecclesiastica gentis Anglorum* (The Ecclesiastical History of the English People, 731 AD), and supported by archaeological evidence (Burmeister 2000), all the Angles from the southern Jutland peninsula migrated to Britain (Welch 1992). So, who is being tested when DNA samples are taken from modern populations in this area (Hills 2003)?

FIRST - THE ASSUMPTIONS UNDERLYING PATTISON’S MODEL

The Belgae – Germani or not?

Thomas et al. (2008) criticized a number of my so-called ‘assumptions’. Their first concerned the ancestry of the Belgae of the Roman province of Belgic Gaul in northwest Europe (see Figure 1). Thomas et al. disagreed with me that the Belgae had *any* Germanic ancestry, and criticized me for citing Christopher Hawkes who they considered out-of date. Contrary to Thomas et al.’s assertion, Hawkes was not the only, or the most recent, author to claim that the Belgae were a hybrid Germanic-Celtic people; a number of more recent authors are cited in Pattison (2008). There is considerable evidence to support the assertion that the Belgae were a hybrid Germani-Celtic people. In addition, the assertion is not contradicted by Caesar’s *Commentarii de Bello Gallico* (Commentaries on the Gallic Wars) as Thomas et al. (2006) claim. In so far as classical writers made ethnic distinctions, not only does Caesar make a distinction between the Belgae and the Germani (as noted by Thomas et al.), but he also makes a distinction between the Belgae and the Celti. These distinctions were made not only by Caesar, but also by other classical writers, including Strabo, Pliny the Elder, and Tacitus, amongst others. In addition, Strabo wrote in Greek, not Latin, which allows for cross checking of the various translations. Pliny the Elder and Tacitus both wrote in Latin. Pliny the Elder born in Transpadane Gaul and Tacitus was most likely born in Narbonese Gaul. Moreover, both spent considerable time in Belgic Gaul and Germania, and each would have been quite familiar with the Belgae, Celti and Germani peoples. Caesar states, “That the greater part of the Belgae were sprung from the Germani”, a phrase that was repeated by Tacitus. The interpretation of ‘sprung from’ has been a matter of debate among historians; some interpret the phrase to mean only that the Belgae came from the east of the Rhine (Koch 2006). However, Strabo clearly stated that the Belgae and Germani were ‘kinsmen to one another’, and he noted the resemblance between the two groups of people. The classical writers were not vague and they clearly named the Belgic tribes that claimed Germanic descent. They were also clear that the Rhine was not a barrier between the Belgae and the Germani, and noted that there were Belgae and Germani on both sides of the river (Gruen 1996). Koch concedes that some Belgic tribes may have been of heterogeneous origins. The Germani were allies of the Belgae in all of their battles against the Romans, which strengthened the relationship between these two peoples. The Rhine was imposed as a convenient border by Caesar for military reasons (Hills 2003).

According to Gruen, Belgic Gaul was a frontier zone, a region of intermixing of the Celti who had been moving slowly north from central (or south-west) Europe and the Germani who had been moving slowly south from southern Scandinavia and northern Germany, for some generations. The

various tribes had the practice of taking slaves after their many inter-tribal raids and battles, and taking hostages from each other in an attempt to maintain peaceful relations. According to Wolfram (1997), their liberal sexual mores ensured genetic mixing. Interestingly, Capelli et al. found no significant differences between the Y-chromosomes of Danes, northern Germans, and Frisians, all from northwest Europe, and consequently could not distinguish these possible source-populations of the people who arrived in Britain during the early Anglo-Saxon period. Although there was apparently a predominance of Celtic *writing* in Belgic Gaul, the languages *spoken* within the different Belgic tribes was likely confusing to later historical linguists (Koch 2006) as the Belgae were most likely polyglot (Wolfram 1997). Whatmough (1970) made a thorough survey of the written evidence for the Gallic languages, preserved as names in classical sources, epigraphic texts (inscriptions, coins, graffiti, etc.), and place names. He concluded that there were significant language and dialect variations across Gaul and was certain that a western Germanic dialect was spoken in Belgic Gaul, in regions adjoining the Rhine. These conclusions have been corroborated by further significant discoveries of written evidence (Creighton 2000).

The Belgae – migration to Britain

Thomas et al. (2008) questioned the ‘assumption’ that the Belgae migrated into southern and eastern England during the pre-Roman period. It is correct that the “ambiguous evidence for their migration to southern Britain has been debated for several decades”; however, the fact that there *was* such a migration is no longer seriously contested (although some confusion still exists regarding using the term ‘Belgae’; Millett 1990). Even Weale et al. accepted that such a migration occurred, *viz.*, “Archaeology and the testimony of Caesar combine to suggest an immigration of the Belgae, a Celtic (*sic*) tribe from northern Gaul, into central southern England between 100 and 80 BC”, and they even cite Christopher Hawkes in support of the migration theory.

Some of the historical evidence in support of a migration of Belgae to Britain can be found in Caesar’s works, which include statements that: the maritime tribes in Britain claimed descent from the Continental Belgae; a king of the Sussiones, a Continental Belgic tribe, also ruled a large area of Britain; the similarity of tribal names in Britain with those on the Continent; British auxiliaries being used in all the battles of the Gauls; the Continental Belgae leaders escaping to Britain after losing battles to Caesar; Caesar’s former ally Commius, of the Continental Atrebates, having kin in Britain and retiring there as king of the British Atrebates (Creighton 2000; Cunliffe 2005; Laycock 2008); the appearance of the southern Britons being different from the northern Britons and the Continental Gauls (Celti), and like the Continental Belgae. These statements by Caesar are supported by other classical writers. The migration of Continental Belgae to Britain is also supported by extensive pre-Roman archaeological evidence from south-east Britain, as reported by Koch; this evidence includes Belgic coins; high-quality pottery made on fast-spinning potters wheels; Belgic Oppida; wrought-iron firedogs; late La Tène-style art; cremation burials, some with elaborate grave items; and the British Belgic word for war-chariot differing from that used in northern Britain. Cunliffe (2005) concluded that the interpretation which best fits all the evidence is of a long period of social and economic intercourse between Britain and Belgic Gaul throughout the Iron Age, involving occasionally intense interactions. De Jersey (2006) suggests that a particular type of relationship existed between southern Britain and parts of Belgic Gaul, based on intermarriages and other social ties. In the opinion of Laycock, the Belgae seem to have been, at least in some sense, a Germanic tribe who lived near the North Sea coast, and who presumably shared at least some genetic characteristics with the Germani. Thomas et al. (2008) also ignored the work of Oppenheimer that was cited in Pattison (2008). Using the same genetic data as Thomas et al. (2006) (mentioned above), Oppenheimer identified a close genetic similarity between modern Belgians and the southern English. Furthermore, Oppenheimer argued that the eastern Britons spoke a Germanic language *before* the Roman occupation and that it survived through the Roman period.

Each piece of the above evidence may be criticized when examined in isolation, however, collectively, and even taking into consideration the propagandist nature of Caesar's *de Bello Gallico*, the evidence produces a coherent and convincing picture of a *significant* migration of Continental Belgae into southern Britain, and that the Belgae were of at least *part* Germanic ancestry. Thus, the question is not about whether a pre-Roman Germanic migration occurred, but about the magnitude of the migration (Cunliffe 2005, 2009; de Jersey 2006).

Germani in the Roman army in Britain

Thomas et al. criticized my estimates of the number of Germani in the Roman army. While the exact numbers of Germani in the Roman army in Britain are not known, the fact that there were many tens of thousands over the nearly 400 yrs of Roman occupation is not disputed. Thomas et al., however, claim that the proportion of Germani in the Roman army has been overstated in the literature and cites Elton (1997) (*sic*) in support of this claim. However, Elton (1996) does not appear to be a particularly relevant reference regarding the situation in Britain as it concerns the Roman field army in post-350 AD Europe. Still, Elton states that a substantial proportion of the late Roman army (approx. one man in four), appears to have been of non-imperial origins, with most recruits apparently coming from beyond the Rhine, i.e. they were free Germani. However, Elton understates the number of Germani in the Roman army, as he classifies all soldiers known to have been born or brought up in the Empire, such as Stilicho and Silvanus, both Roman generals of Germanic ancestry, as 'definitely Romans'. Thus, if soldiers' names had a 'Germanic' ending, they were considered 'probably Germans'; otherwise they were 'probably Romans'. This last point ignores the fact that it was not uncommon for Germanic soldiers to adopt Roman names. Overall, the classifications should have been based on ancestry, not ethnicity, to be relevant in the present context. Thomas et al. continued with "The exact numbers of Germani in the Roman army are not easy to estimate because recruitment was by regions, not by ethnicity". This continued the confusion between ancestry and ethnicity because the regions were the tribal areas in which people were more likely to be of common ancestry. Keppie (1996) states that the barbarian army units were normally named after the tribe from which they were recruited, such as *cohors VI Nerviorum* from the Nervii of Belgic Gaul, which served in Britain from the 2nd to 4th centuries (Breeze 2006).

According to Thomas et al. (2008), "the units that stayed behind [in Britain after 407 AD] were probably a few thousand frontier troops (limitanei) whose composition would have been mixed and added to by local recruitment" and they cite Holder (1982) and James (1984) as references. Interestingly, James states that the regular garrison of Britain was "small", with <20,000 and possibly <15,000 men, throughout the 4th century. However, with families and dependants this number might swell to between 50,000 and 200,000 people (Millett 1990). This is somewhat more than "a few thousand". Ward-Perkins (2005) states that it was common practice for Rome to swell its legions with *foederati* recruited from the Germanic homelands. Welch adds that this practice also extended to the Roman army serving in Britain, as graves of these Germanic mercenaries and their families can be identified in the Roman cemeteries of the period.

What about the earlier centuries of Roman Britain? According to James, Britain's army in the 1st and 2nd centuries was exceptionally large; depending on the size of the legion, it consisted of 50,000 to 53,000 men, with a total of about 35,180 auxiliaries. Indeed, during this period Britain had the largest garrison of any single province in the Roman Empire (James 1984). Similarly, Breeze estimated that the total size of the Roman army in Britain during the reign of Antoninus Pius (138-161 AD) at nearly 50,000 men. According to Breeze, the best Roman generals of the day were sent to command the British army, because of its very large size. Holder states that during the 3rd century, recruits were mainly Germani and tribal units did not retain their ethnicity for long. Holder lists many units of various kinds testified in Britain, including 10 from Belgic Gaul, 28 from Lower

Germany and 7 from Upper Germany. These units were either nominally 500 or 1,000 men strong, and do not include individual Belgic and Germanic men placed piecemeal into other units. These figures also do not include the families, if any, of the soldiers, or the Roman administrators, merchants, tradesmen, etc. also in Britain. Millett adds that free Germani were undoubtedly present in the late Roman army of Britain, but they are likely to be archaeologically indistinguishable from their contemporaries as they would have been regularized into the army. In general, their use of objects and dress during life is likely to have been Romanized. That troops were ‘recruited locally’ is correct as it was expected that sons of soldiers would be recruited into the Roman army, which would have maintained their ‘Germanic’ genes in Britain.

Weale et al. briefly mentioned that Frisian mercenaries (free Germani) served in Britain on Hadrian’s Wall, but then dismissed any Frisian genetic input into Britain as being insignificant. Numerical estimates provided in Pattison (2008) and above, were given to indicate order-of-magnitude numbers of people (soldiers and civilians) involved in the Roman army in Britain, and the dominant role of the Germani as Roman army soldiers. However, the exact numbers of Germani in the Roman army, which cannot be known for certain, are not overly important; what is more important is that the numbers of Germani were substantial, and that they had numerous opportunities to contribute their genes to the British population over the nearly 400 yrs of Roman occupation. What is clear is that, by the time that Britain ceased being part of the Roman Empire, the input of ‘Germanic’ genes to Britain was likely substantial.

SECOND - CRITICISMS OF THE HISTORICAL NARRATIVE

I provided a brief historical reconstruction in Pattison (2008) as background information on this subject, noting that the subject was subject to continuing debate. However, Thomas et al.’s (2008) implied sweeping criticism of John Morris’ book, “Age of Arthur”, which I cited, was unjustified. Morris was apparently imaginative, even speculative, and consequently this book was controversial, but to imply that he was wrong in everything is unwarranted (Campbell 1975).

Continuity of British culture

Thomas et al. (2008) doubted the continuity of *any* British culture from the pre to post-Roman period into the Anglo-Saxon period. While it is currently difficult to establish a difference between the cultures based on archaeological evidence (Welch 1992), it should be noted that discontinuity is frequently just as hard to identify as continuity Draper (2006). Although the continuity of town life into the 6th century is highly unlikely, as the majority of Romano-British towns were effectively defunct by the mid-fifth century, according to Hamerow (2005), the Anglo-Saxon kingdoms largely adopted the political geography of Roman Britain. Indeed, the continuous use of old boundaries and geographical divisions from the pre-Roman to the Anglo-Saxon periods is intrinsically likely. Hills agrees that some elements of the landscape and its exploitation show continuity, he adds that, while material culture did change in many respects, it is easier to see the pattern established by the end of the 6th century than the initial change. The elements in which continuity occurred were not static, but evolved over time with regional variations. Many of the changes that took place in Britain can also be seen throughout Western Europe. According to Millett, the new culture was the result of positive choices resulting in a fusion of Romano-British and Germani elements to produce something new and Anglo-Saxon. Draper argues that Anglo-Saxon society in Wiltshire was a fusion of both post-Roman British and Continental cultural elements, and that there was no fundamental discontinuity between Roman and medieval England; however, at the same time, important innovations took place in the post-Roman period that cannot be overlooked. More recently, Laycock investigated the process of regional fragmentation in post-Roman Britain, and emphasized elements of continuity from the British tribes in the pre-Roman and Roman periods to the kingdoms that developed in the post-Roman period. For instance, Laycock states that the northern Anglo-Saxon

kingdom of Bernicia should probably be considered more British than Germanic. This may explain the often-stated ‘invisibility’ of the Britons during the early Anglo-Saxon period: the Britons (and Anglo-Saxons) have not been recognized for who they were (Hamerow 2005).

THIRD – THE LAW CODE OF KING INE OF WESSEX

The status of Britons

Thomas et al. (2008) doubted my alternative interpretation of the law code of King Ine of Wessex, initially written c.692 AD, which distinguished between the *Englisc* (usually assumed to be Saxons - Germani) and the *Wealh* (usually assumed to be Britons - Welsh) and accorded them different legal status, such as having different *wergild* (‘blood money’) and oath value. According to Thomas et al. the law code formed the basis of an apartheid-like system, although without physical segregation. However, I argued the opposite point of view that the different legal status for *Englisc* and *Wealh* may have been intentionally to encourage the *Wealh* to become integrated into the Anglo-Saxon kingdoms (Grimmer 2007). This legal distinction lasted as long as there was inter-kingdom warfare within Britain, when unity within kingdoms was important. The distinction had disappeared by the time of the law code of King Alfred of Wessex (c.890 AD). Grimmer argued that the term ‘*Englisc*’ was not a latter (9th century) alteration, as has been suggested by some authors (e.g., Ward-Perkins 2000). Possibly, the term ‘*Englisc*’ was used intentionally by King Ine to be more inclusive, not just referring to the Germani in his kingdom as often assumed, but also including the Britons in his kingdom who had become assimilated and were no longer *Wealh*. In that case, *Englisc* would have the same meaning as Anglo-Saxon as used in this paper.

Enforcement of medieval law codes

Concerning medieval law codes in general, Marcus (1999), in reference to the Pact of Umar II (c.637 AD), stated “This Pact, like much medieval legislation, was honored more in the breach than in the observance”. Regarding the law code of King Ine specifically, there appears to be no historical evidence that such a discriminatory apartheid-like system existed, let alone was enforced. Grimmer states that, “a large number of laws give the impression that Ine was responding to particular cases as they were presented to him by petitioners”. If Grimmer is correct, then the laws as such presumably did not exist in earlier centuries, as is assumed by Thomas et al. For the apartheid-like system to be effective, all early Anglo-Saxon kingdoms would need to discriminate between Germani and Britons. However, Grimmer observes that: “What is significant about Ine’s Code with regard to the question of Anglo-Saxon relations is that it is the only surviving early Anglo-Saxon law code which includes explicit provision for Britons, granting them legal status”. For instance, no distinction is made between *Englisc* and *Wealh* in the law code of Æthelburht of Kent (c.602 AD), the earliest surviving law code, which similarly prescribed the *wergild* for various offences committed by his subjects of different social ranks (as noted by Härke 1997). Also, although possibly not to be expected, nothing like apartheid is described by the British priest Gildas in *De Excidio Britanniae* (The Ruin of Britain, c.540 AD), the English monk Bede in *Historia Ecclesiastica Gentis Anglorum* (c.731 AD, referred to above), or in *Historia Brittonum* (History of Britain), traditionally ascribed to the Welsh monk Nennius (c.830 AD). Each of the above documents refers to slaves, but virtually all societies in ancient and early medieval periods had slaves (Pelteret 1981); and, the presence of slaves does not, of course, imply the existence of an apartheid-like system (Woolf 2007). Gildas does, however, say that some Britons voluntarily became slaves, or at least subservient, to the Anglo-Saxon kingdoms. For instance, according to Bassett (2000), Britons in the west midlands voluntarily joined the Anglo-Saxon kingdom of Mercia in the late 7th century, rather than staying in the British kingdom of Powys. If there was such a severe, thoroughly enforced, apartheid-like system, why would Britons freely choose to join the Anglo-Saxon kingdoms? On the contrary, according to Ward-Perkins (2005), the law code of Ine

shows that British aristocratic families with substantial estates and considerable legal status maintained their wealth and influence in Anglo-Saxon kingdoms. The blood-price of a Briton in royal service was higher than that of an ordinary Germani, although lower than of a Germani of equivalent standing. Härke (1997) appears to accept that there is no guarantee that legal status always coincided with social status; this would appear to undermine the law code as basis for an apartheid-like system. Thomas et al. (2006) accepted that the Anglo-Saxon kingdoms in Britain were not unique in having ‘blood money’; in fact, blood-money was common in most early European kingdoms, including both British kingdoms and Continental Germanic kingdoms, as an important strategy for avoiding vengeance feuds amongst subjects disrupting their kingdoms. Do Thomas et al. believe that all kingdoms with blood money also had apartheid-like systems? If not, then the existence of such laws does not necessarily imply the existence of an apartheid-like system. Even Woolf (2007), who originally proposed an apartheid-like system, stated “We are not looking at a society in which the Britons are uniformly regarded as lower status than the Anglo-Saxons ... Many individual Britons may have found themselves drifting into households, as slaves, hangers-on, brides and so forth. ... Cumulatively, however, the biological contribution of this steady trickle of Britons into English households will have been enormous over several generations”.

Slaves

Thomas et al. (2008) claim that they find it “difficult to see how the author [Pattison] could have derived his reinterpretation of the late seventh century Laws of Ine from the original text. Britons are mentioned in several clauses; with one exception, they are mentioned as being in a subordinate role or of slave status”. According to Härke (1997), *Wealh* could mean either a Welshman or a slave. However, according to Grimmer, the term ‘*Wealh*’ was a word for a ‘foreigner’, used more specifically of Romance speakers, but which came to mean ‘Briton’, and by the 10th century could also be used to denote a ‘slave’. The word for ‘slave’ in Ine’s law code is ‘*theow*’. According to Hills, the word *Wealh* (or *Walh*) was not incompatible with high status, since it formed an element of names, and perhaps of ancestry, as in the names of several Anglo-Saxon royal families in the 7th century, such as *Cenwalh* and *Merewalh*. Slaves were not just Welsh, but could also be Germanic criminals or prisoners of war; and, slavery was not permanent: slaves could obtain their freedom (Pelteret 1981; Härke 1997). So Thomas et al. are mistaken as to the laws of Ine referring to Welsh of all social levels, some of whom may have been slaves; but, in fact, the word used to refer to the Welsh did not come to mean ‘slave’ until about a century after there was no legal distinction between the *Wealh* and the *Englisc*.

Progression within an Anglo-Saxon kingdom

Thomas et al. (2008) criticized the suggestion that Britons could progress within an Anglo-Saxon kingdom, or even intermarry with the Germani; they believe that the law code prohibits such a route. On the contrary, according to Grimmer, there does not appear to be anything in Ine’s code that explicitly prohibited assimilation, beyond the caveat that people of different social strata could not generally associate as equals. This appears to have been the situation in the late Roman Empire when, according to Mathisen (2006), barbarians and Romans were perfectly free to intermarry, as long as the marriages were between people of equal status. Mathisen in his study of the *Letters* of the prominent Romano-Gaul Sidonius Apollinaris, who lived in the Visigothic kingdom under King Euric (466-484 AD), wrote that, “There is no indication of any formal process for becoming a citizen of a barbarian kingdom. It is likely that, just as in the Roman Empire, one did so by a process of residence, participation, and self-identification.” As Woolf (1997) noted when referring to the Romanization of the Gauls, “Gauls were not ‘assimilated’ to a pre-existing social order, but participated in the creation of a new one.” Apparently the same applied to the Britons in the early Anglo-Saxon period (Hamerow 2005).

Welch, while questioning the assumption that Germanic warriors married native British women, stated “Still, marriages are recorded between Anglo-Saxon kings and British princesses in the 6th and 7th centuries and intermarriage need not have been particularly unusual.” Hills agrees that a good case might be made for southern Britain having been taken over by new ruling dynasties with Germanic ancestry but who also intermarried with British elites. Similarly, according to Bassett (1989), the Germani would have settled on the former Romano-British estates, sometimes no doubt by force of arms but often by agreement with the Britons, after which intermarriage would steadily hybridize successive generations of inhabitants of the various settlements within a given district: this is a view to which Bennett (2011) agrees.

The mistake of Thomas et al. was to equate *Wealh* with all Britons. The process for a Briton to cease being *Wealh* and to become an Anglo-Saxon was to adopt the prevailing Anglo-Saxon culture and language. As discussed by Welch, “If Anglo-Saxon men required their British wives to wear and be buried in Anglo-Saxon folk dress this would proclaim these women to have become Anglo-Saxon.” Laycock adds that “there seems no particular reason to doubt that a significant number of those using ‘Anglo-Saxon’ artifacts in the 5th and 6th centuries and employing ‘Anglo-Saxon’ customs must have been British just as most of the people using Roman artifacts and Roman customs during the Roman period had been.” Intermarriage was apparently neither discouraged nor restricted to just the elites. In addition, significant interbreeding would have still undoubtedly occurred outside of marriage.

Sexual fraternization

The sexual activities of the various immigrants, invaders, soldiers, merchants, etc, that arrived in Britain over the millennia is possibly more important than their numbers in influencing the gene pool, and Pattison (2008) provided many references in support the opportunities for fraternization. Thomas et al. (2006) downplay the amount of *interbreeding* that occurs in populations, whether inside or outside of marriages. They assume that no significant *intermarriage* occurred between Britons and Germani for up to 400 yrs, or even outside of this period; while I was more concerned with *interbreeding* during all periods. The situation regarding marriages in Britain may be confusing if it was anything like that on the Continent where, according to Bennett, polygamy was standard practice among the Gallo-Roman and barbarian elites, as were various different sorts of unions (formal, informal and concubinage), for several centuries after the fall of Rome. Thomas et al. appear to reluctantly accept only forced sexual relations outside of marriage, i.e., rape. Rape has occurred frequently throughout history, especially in troubled times (Vikman 2005). Testosterone-driven young males – the key actors in ancient war bands – do not just exhibit violence, as described by Härke (in Burmeister 2000), but also exhibit heightened sexual activity (Baumeister et al. 2001). Compared to the later medieval period when bastardy was discouraged by the manorial fine of *childwyte*, it is possible that in Anglo-Saxon times there was a more indulgent attitude (Laslett 1980). Even so, when discouraged in the later medieval period, births outside of marriage were not uncommon, comprising up to 25% of births in some parishes in the pre-plague period, and crossing social boundaries (Pattison 2007). Also, adultery leading to illicit births is hidden within marriages (Laslett 1980). Paternal discrepancy occurs when the man who believes that he is the father of a child is not the biological father; traditionally thought to represent about 10% of all births. This figure is roughly confirmed using data provided in Bellis et al. (2005), yielding a paternal discrepancy rate of about 8%. Thomas et al. underestimate the strength of the innate sex drive, especially (but not only), in males. In any case, it is unlikely that any child born out of wedlock would have taken the identity of the biological father, as claimed by Thomas et al. (2006).

FOURTH – THE SKELETAL EVIDENCE

Finally, I was criticized for reading only Härke's 1990 "short summary" English language, 22 page, "Warrior Graves?" and not his later 1992 German language book, both of which were cited together in Thomas et al. (2006). Härke attempted to show, from a study of skeletons and grave goods (including weapons), that the Anglo-Saxons (Germani) were in better health than the suppressed Celts (Britons), and that the Germani gradually out-bred the Britons over a period of a few hundred years. However, I was only repeating comments made by Thomas et al. (2006) themselves concerning the work of Härke, they wrote, "Skeletal evidence for the existence of two populations that are to an extent reproductively isolated is *more circumstantial*, and rests on the stature differential between men buried with, and those buried without weapons in cemeteries of Anglo-Saxon England. ... An additional, but *less reliable* type of evidence may be the relative wealth expressed in the number of grave goods. ... However, ... the fact that some of the artifacts (the weapons) have been used in the identification of affiliations ... means that their further use here to identify an economic differential between Britons and Anglo-Saxons may be close to a *circular-argument*." (italics added). According to Hills, Anglo-Saxon burials may represent the graves of the local aristocracy, who could have been of mixed British and Germanic ancestry, or even predominantly British.

A more objective approach using skeletal material was recently taken by Russell (2006) who statistically analyzed craniometric data on up to 37 variables collected from 1,464 individuals from the Iron Age to the late Anglo-Saxon period in Britain and Denmark. Russell found evidence of long-term gene flow between the Continent and Britain. Her results, in combination with archaeological, historical and archaeogenetic evidence, suggest that long-term, low-levels of migration occurred between Britain and Denmark during the periods studied (with the exception of the Romano-British period), with regional and temporal migration 'spikes'. She also suggested that the regional variations might explain the very different conclusions that previous researchers have come on this topic.

Analyses of ancient DNA samples provide one promising possibility for solving the current enigma of 'who the Anglo-Saxons were'; such analyses have recently resolved a similar conundrum concerning the introduction of farming into Europe: by migration or adoption? A recent study by Haak et al. (2010) suggests that a significant demographic input from the near East occurred during the onset of farming in Europe. That is, farming was probably introduced into Europe by migrations.

CONCLUSION

Current evidence makes it clear that there has been a very long period of interaction between the Britons of Britain and the Germani of northwest Europe via the North Sea - the *Longue Durée* of Cunliffe; migrations via the North Sea provided considerable opportunity for Germanic gene input into Britain, in addition to later inputs such as by the Belgae and by 'Roman' soldiers. Importantly, there is no independent evidence that an apartheid-like system existed in any Anglo-Saxon kingdom; moreover, the introduction of an apartheid-like system is unnecessary for reconciling the different estimates of Germani arrivals.

Genetics-based research – archaeogenetics - holds considerable promise, but still has limitations and problems such as those described by Hills (2003), Laycock (2008), and Higham (2008). Information from a wider range of disciplines should be incorporated into historical modeling to ensure that the modeling is feasible. Also, more care should be taken to distinguish between ancestry and ethnicity in historical studies: it is the bones, not the burial rites, which are important in the present context. Overall, there appears to be insufficient recognition of the expertise and contributions that different researchers bring to historical reconstructions, as recently pointed out by Kuper & Marks (2011).

ACKNOWLEDGEMENTS

The author thanks Barry Cunliffe (Oxford), Bryan Ward-Perkins (Oxford), Mark Grimmer (Tasmania), and Anthony Whitmore (Deakin), for reading an earlier draft of this paper and for making helpful comments.

LITERATURE CITED

- Amos W, Jow H, Burroughs NJ. 2008. A combined Markov chain Monte Carlo and simulation-based approach for inferring the colonization history of the British Isles. In: *Simulations, Genetics and Human Prehistory – a focus on islands*. S Matsumura, P Forster, C Renfrew, eds. Cambridge, UK: McDonald Institute for Archaeological Research, 49-58.
- Bassett S. 1989. In search of the origins of Anglo-Saxon kingdoms. In: *Origins of Anglo-Saxon Kingdoms*. S Bassett, ed. Leicester, UK: Leicester University Press, 3-27.
- Bassett S. 2000. How the west was won: The Anglo-Saxon takeover of the west midlands. *Anglo-Saxon Stud Archaeol Hist* 11:107-118.
- Baumeister RF, Catanese KR, Vohs KD. 2001. Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence. *Pers Soc Psychol Rev*. 5:242-273.
- Bellis MA, Hughes K, Hughes S, et al. 2005. Measuring parental discrepancy and its public health consequences. *J Epidemiol Commun Health* 59:749-754.
- Bennett JM. 2011. *Medieval Europe: a short history*, 11th edn. New York: McGraw-Hill.
- Breeze DJ. 2006. *The Antonine Wall*, Edinburgh, UK: John Donald.
- Burmeister S. 2000. Archaeology and migration: approaches to an archaeological proof of migration. Including Comments and Reply. *Curr Anthropol* 41:539-567.
- Campbell J. 1975. Review of 'The Age of Arthur'. *Studia Hibernica* 15:177-185.
- Capelli C, Redhead N, Abernethy JK, et al. 2003. A Y chromosome census of the British Isles. *Curr Biol* 13:979-984.
- Creighton J. 2000. *Coins and Power in Late Iron Age Britain*. Cambridge, UK: Cambridge University Press.
- Cunliffe B. 2005. *Iron Age Communities in Britain*, 4th edn. London, UK: Routledge.
- Cunliffe B. 2009. A Race Apart: Insularity and Connectivity. *Proc Prehist Soc* 75:55-64.
- de Jersey P. 2006. Belgic Coins in Britain. In: *Celtic Coinage: New Discoveries, New Discussion*. P de Jersey, ed. Brit. Archaeol. Reports, Oxford, UK: Archaeopress. p 117-137.
- Draper S. 2006. *Landscape, settlement and society in Roman and early Medieval Wiltshire*, Brit. Archaeol. Reports British series 419, Oxford, UK: Archaeopress.
- Durand JD. 1974. *Historical estimates of world population: an evaluation*. Analytical and Technical Report 10, Population Studies Center, Philadelphia, PA: University of Pennsylvania Press.
- Elton H. 1996. *Warfare in Roman Europe, AD 350 – 425*. Oxford, UK: Clarendon Press.
- Gregory K, Bibbo G, Pattison JE. 2005. A standard approach to measurement uncertainties for scientists and engineers in medicine. *Australas Phys Eng Sci Med* 28:131-139.
- Grimmer M. 2007. Britons in early Wessex: The Evidence of the Law Code of Ine. In: *Britons in Anglo-Saxon England*, NJ Higham ed. Woodridge, UK: Boydell & Brewer, 102-114.
- Gruen ES. 1996. The expansion of the Empire under Augustus. Chapter 4, The Augustan Empire 43 BC-AD 69. In: *The Cambridge Ancient History, vol. 10*. AK Bowman, E Champlin, A Lintott, eds. 2nd edn. Cambridge, UK: Cambridge University Press, 147-197.
- Haak W, Balanovsky O, Sanchez JJ, et al. 2010. Ancient DNA from European early Neolithic farmers reveals their Near Eastern affinities. *PLoS Biol* 8:e1000536.
- Hamerow H. 2005. The earliest Anglo-Saxon kingdoms. In: *The New Cambridge Medieval History, vol. 1, c.500 – c.700*. P Fouracre, ed. Cambridge, UK: Cambridge University Press, 263-288.
- Härke H. 1997. Early Anglo-Saxon social structure. In: *The Anglo-Saxon from the Migration Period to the Eighth Century: An ethnographic perspective*. J Hines, ed. Woodbridge: Boydell Press, 125-60.
- Härke H. 2002. Kings and warriors: population and landscape from post-Roman to Norman Britain. In: *The peopling of Britain: the shaping of human landscape*. P Slack, R Ward, eds. Oxford, UK: Oxford University Press, 145-175.

- Higham C. 2008. Wither Archaeogenetics? A view from the trenches. In: *Simulations, Genetics and Human Prehistory – a focus on islands*. S Matsumura, P Forster, C Renfrew. Cambridge, UK: McDonald Institute for Archaeological Research, 183-187.
- Hills C. 2003. *Origins of the English*. London, UK: Duckworth.
- Holder PA. 1982. *The Roman army in Britain*. London, UK: Batsford.
- James ST. 1984. Britain and the late Roman army. In: *Military and civilian in Roman Britain*. TF Blagg, A King. Brit. Archaeol. Reports, British series **136**, Oxford, UK: British Archaeological Reports, 161-186.
- Keppie L. 1996. The army and the navy. Chapter 11, The Augustan Empire 43 BC-AD 69. In: *The Cambridge Ancient History, vol. 10*. AK Bowman, E Champlin, A Lintott, eds. 2nd edn. Cambridge, UK: Cambridge University Press, 371-396.
- Koch JT. 2006. *Celtic culture: a historical encyclopaedia*. Santa Barbara, CA: ABC-CLIO.
- Kuper A, Marks J. 2011. Anthropologists unite! *Nature* 470:166-168.
- Laslett P. 1980. Introduction: comparing illegitimacy over time and between cultures. In: *Bastardy and its comparative history*. P Laslett, K Oosterveen, RM Smith, eds. London, UK: Edward Arnold, 1-64.
- Laycock S. 2008. *Britannia: The failed state*. Stroud, UK: The History Press.
- Marcus JR. 1999. *The Jews in the Medieval World: A source book, 315 – 1793*. Revised edn. Cincinnati: Hebrew Union College Press.
- Mathisen RW. 2006. Peregrini, Barbari, and Cives Romani: concepts of citizenship and the legal identity of barbarians in the Late Roman Empire. *Am Hist Rev* 111:1011-1040.
- Millett M. 1990. *The Romanization of Britain: an essay in archaeological interpretation*. Cambridge, UK: Cambridge University Press.
- Oppenheimer S. 2006. *The origins of the British: a genetic detective story*. London, UK: Constable and Robinson.
- Pattison JE, Hugtenburg RP, Charles M, et al. 2001. Experimental simulation of A-bomb gamma ray spectra for radiobiological studies. *Radiat Prot Dosim* 95:125-136.
- Pattison JE. 2003. The effect of the bubonic plague epidemic on inbreeding in 14th C Britain. *Am J Hum Biol* 15:101-111.
- Pattison JE. 2004. A comparison of inbreeding rates in India, Japan, Europe and China. *J Comp Hum Biol* 55:113-128.
- Pattison JE. 2007. Inbreeding in large semi-isolated populations: effects of varying generation length and of migration. *Am J Hum Biol* 19:495-510.
- Pattison JE. 2008. Is it necessary to assume an apartheid-like social structure in early Anglo-Saxon England? *Proc Roy Soc B* 275:2423-2423.
- Pattison JE, Hugtenburg RP, Green S. 2010. Enhancement of natural background gamma-radiation dose around uranium microparticles in the human body. *J Roy Soc Interface* 7:603-611.
- Pelteret D. 1981. Slave raiding and slave trading in early England. *Anglo-Saxon England* 9:99-114.
- Russell CK. 2006. *Whence came the English? Exploring relationships between the Iron Age, Romano-British and Anglo-Saxon periods in Britain and Denmark: A craniometric biodistance analysis*. Ph.D. thesis, Department of Anthropology, Durham University, UK.
- Ryan A. 1970. *The philosophy of the social sciences*. London, UK: Macmillan.
- Sivamurthy M. 1982. *Growth and structure of human populations in the presence of migration*. London, UK: Academic press.
- Thomas MG, Stumpf MPH, Härke H. 2006 Evidence for an apartheid-like social structure in early Anglo-Saxon England. *Proc Roy Soc B* 273:2651-2657.
- Thomas MG, Stumpf MPH, Härke H. 2008. Integration versus apartheid in post-Roman Britain: a response to Pattison. *Proc Roy Soc B* 275:2419-2421.
- Vikman E. 2005. Ancient origins: sexual violence in warfare, part 1. *Anthropol Med* 12:21-31.
- Ward-Perkins B. 2000. Why did the Anglo-Saxons not become more British? *Engl Hist Rev* 115:513-533.
- Ward-Perkins B. 2005. *The fall of Rome and the end of civilization*. Oxford, UK: Oxford University Press.
- Weale ME, Weiss DA, Jager RF, et al. 2002. Y chromosome evidence for Anglo-Saxon mass migration. *Mol Biol Evol* 19:1008-1021.
- Welch MG. 1992. *Anglo-Saxon England*. London, UK: Batsford.
- Werndl C. 2009. Are deterministic descriptions and indeterministic descriptions observationally equivalent? *Stud Hist Philos M P* 40:232-242.

- Whatmough J. 1970. *The Dialects of Ancient Gaul: Prolegomena and Records of the Dialects*. Cambridge, Massachusetts: Harvard University Press.
- Wolfram H. 1997. *The Roman Empire and its Germanic Peoples*. T. Dunlap, Trans. Berkley, CA: University of California Press.
- Woolf A. 2004. *Apartheid and genocide: legal theory and economic reality*. Presentation given at the conference Britons in Anglo-Saxon England, Manchester, UK, 14-16 April 2004.
- Woolf A. 2007. Apartheid and economics in Anglo-Saxon England. In: *Britons in Anglo-Saxon England*. NJ Higham, ed. Woodridge, UK: Boydell & Brewer, 115-129.
- Woolf GD. 1997. Beyond Romans and natives. *World Archaeol* 28:339-350.

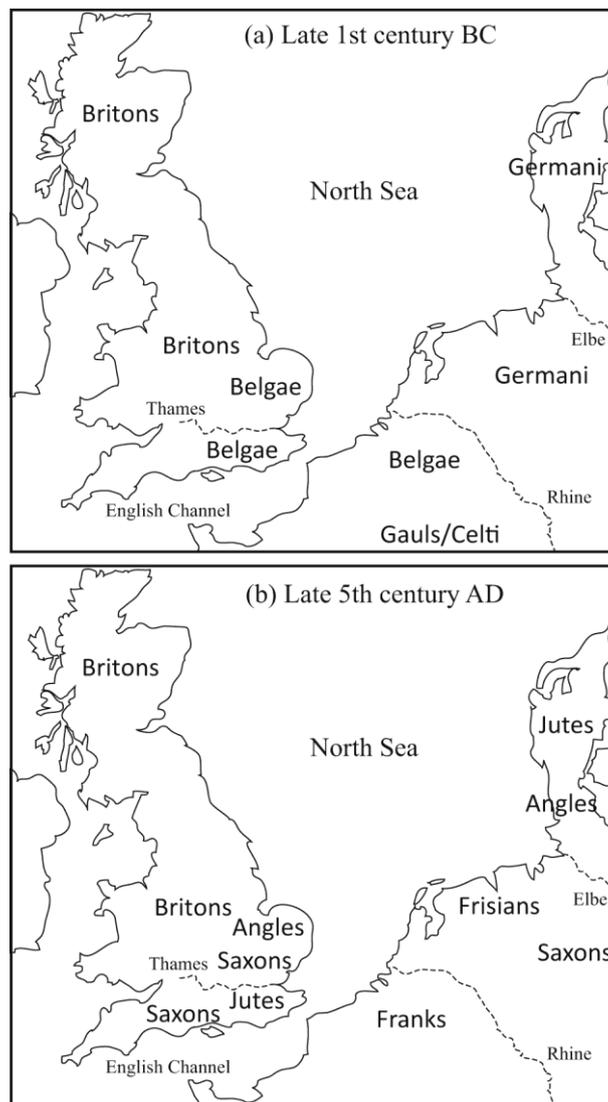


Figure 1. These maps show northwest Europe. Map (a) indicates the approximate locations of the Belgae and the Germani with respect to Britain in the late 1st century BC. For comparison, map (b) indicates the approximate locations of the various peoples who migrated to Britain during the early Anglo-Saxon period.