Military Communications in the East Anglian Fenland during the Roman period: an archaeological investigation of the Fen Causeway at Flag Fen, with a discussion of the road's origins*

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Introduction

The Fen Causeway was the principal east/west route in the Roman period across the East Anglian Fens in the counties of Cambridgeshire and Norfolk (Fig.1). The road largely consists of a thick spread of sandy gravel, and takes an eccentric course for much of its length, frequently diverting from a straight route to take advantage of islands of solid ground dotted throughout the region. The Causeway branches out of a complex of roads lying north of the river Nene and the village of Castor (west of Peterborough), and heads east, until its course is lost beneath modem Peterborough. The road re-emerges as it crosses the Fengate complex, a substantial prehistoric and Romano-British settlement (Pryor 1981: 228), which may have been abandoned by the time of the road's construction. The Causeway then stretches out onto the peat of the Flag Fen basin, continuing east to the more solid ground of Whittlesey island. It then passes north of Eastrea and (having crossed a very short stretch of fen) on to Coates. The road re-enters fen proper at Eldernell crossing in a straight run to March island, hitting solid ground once more at Grandford. The final sector of the road runs mostly across peat fen until it reaches the Old Croft River, then changes direction to head north east, over the silt fins towards Denver in Norfolk. It is here that the road leaves low-lying ground, approximately thirty miles east of Peterborough.

Thus the Fen Causeway is composed of two broad types of road: the dry land sections, built with little difficulty across the gravel islands of the fen landscape, and the more difficult, less surely-footed sections across fen, peat in the west and silt in the east. This basic division is crucial for any understanding of the road as a structure, and underpins any hope of extracting even a sketchy outline as to why and when it was built. As we shall see, a partial answer to this problem may be sought by examining the road as it crosses peat fen.

The archaeological section under particular discussion in this paper is located at the Flag Fen site, principally known for the excavation of a Bronze Age timber structure, probably of a ritual character (Pryor 1992: 439), just east of the modern city of Peterborough. The Fen Causeway crosses the site which lies between Fengate and the Northey spur of Whittlesey island (Fig.2), and is exposed in section where it was cut through in the Middle Ages by the construction of the Mustdyke (Pryor 1986). This section, exposed for many years, badly weathered and incompletely excavated, is open to public view, and is partially protected by an overhead shelter, the support struts and walls of which imposed certain constraints on excavation. It was the complete excavation of this section that comprised the work undertaken in the 1996 excavation season, conducted by the Fenland Archaeological Trust, using students from the Institute of Archaeology, UCL, and the Universities of Leicester and Cardiff.

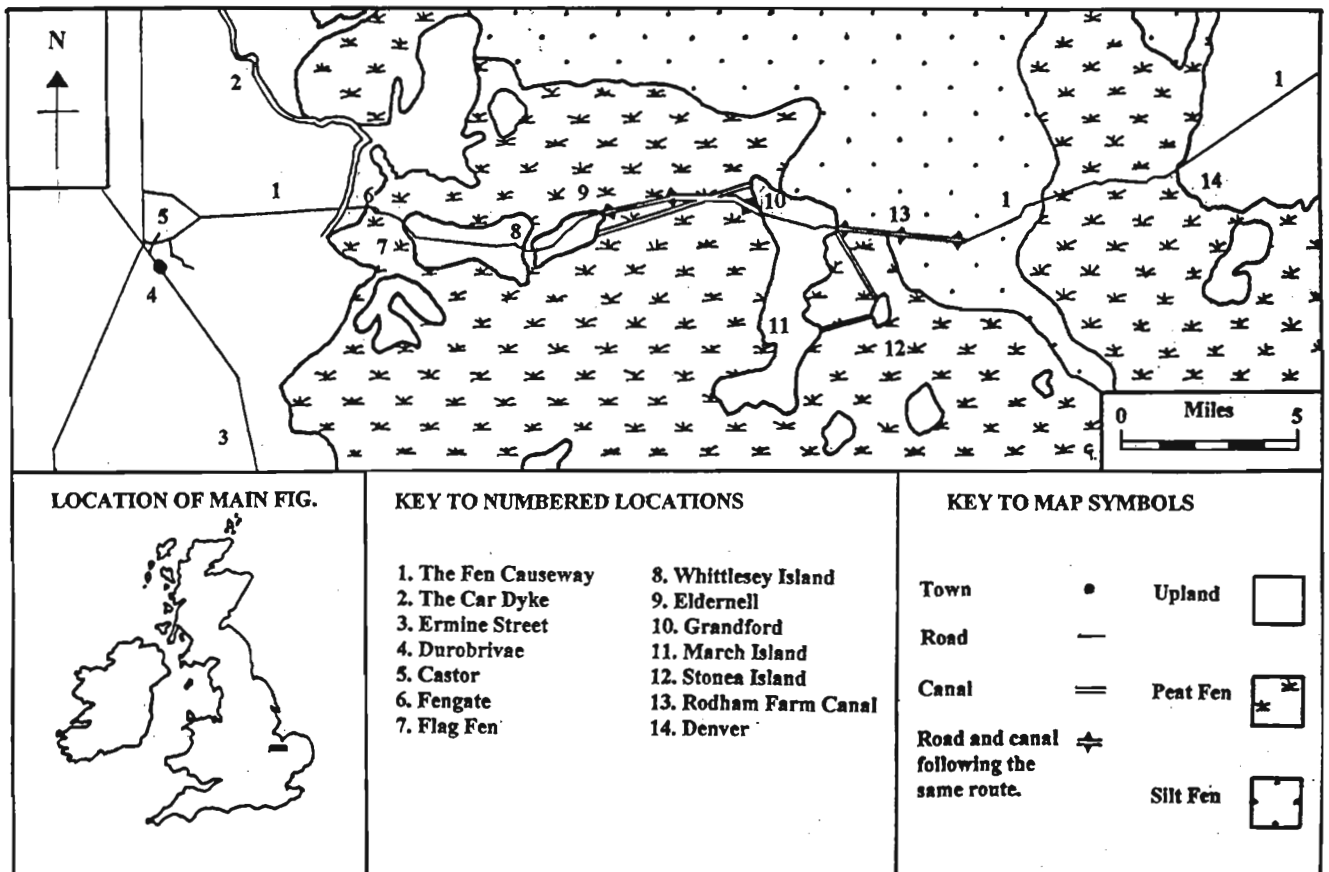


Figure 1 Location of sites mentioned in the text

The Section (Fig.3)
The section across the Fen Causeway is located at grid reference OS TL 2271 9896. The south side of the road is truncated by a back-filled excavation trench, dating to 1984, and originally dug to investigate the Bronze Age deposits that lie beneath the level of the Roman Road at +0.5m OD (Pryor 1986: 1). Although all spoil from the road itself was sieved through a 10mm sieve, during the course of the excavation a single animal bone incorporated into the upper surface of the road deposits comprised the sole find. Accordingly it must be stressed that there was no datable evidence recovered from this section. However, the general sequence for the western sector of the Fen Causeway is sufficiently well understood (Pryor 1980: 147) to allow some discussion of the sequence excavated at the Mustdyke.

Discussion of the section
A The First Phase
Most sections through the Causeway reveal multiple phases of construction. This is so at Fengate (Pryor 1980: 147), in a more complex sense at London Lode Farm (Silvester 1992: 113), and at Neatmoor Farm, Upwell (Fowler 1950). The section cut at Flag Fen is no exception, with at least three construction phases. The first phase consists of a thin layer of gravel, 100mm thick at its deepest, lying directly on top of the Iron Age peat surface (contexts [008], [010], and [0221 to [024], Appendix and Fig.2), forming a road approximately 5.6 metres wide.

The marching surface of Phase I (context [OO8] was marked by a layer of material noticeably different from the main body of the road. This material was comprised of white gravel with a larger stone size than the sandy coarse gravel of the road foundation (context [010]). This surface was covered by a thin layer of silty sand (context [009]) at its southern edge, giving an indication of the flooding problems that the road might have suffered even in this early phase.

A significant feature that needs to be discussed when considering the first phase of the road is that of the wooden strapping. Layered approximately half way up the gravel foundation and spreading across most of the width of the road was a double layer of round wood, largely decayed and represented by voids with the impressions of bark pressed into the surrounding conglomerates. The straps were of unknown dimensions, as none were found complete – however, the longest fragment measured 52cm. The lower layer was orientated from northeast to southwest, and the upper layer from northwest to southeast. Thus the layers formed a criss-cross pattern, creating a bed of round wood reinforcement in the road foundations. This was presumably an engineering response to the soft and flexible peat terrain that had to be traversed.

B The Second Phase
Phase II of the road consisted of a second layer of compact gravel (context [001]) laid directly over the first road surface. This phase contained wooden strapping similar to that in Phase I, comprising two layers, and of matching orientation. The marching surface (context [006] was also of similar material to the Phase I surface (context [008]), but the whole was sealed by an extensive band of sandy silt (contexts [003] and [011]). This deposit contained shells of the fresh water-snail *Planorbis corneus* (Great Ramshorn) (Janus 1965: 70), which strongly suggests an episode of

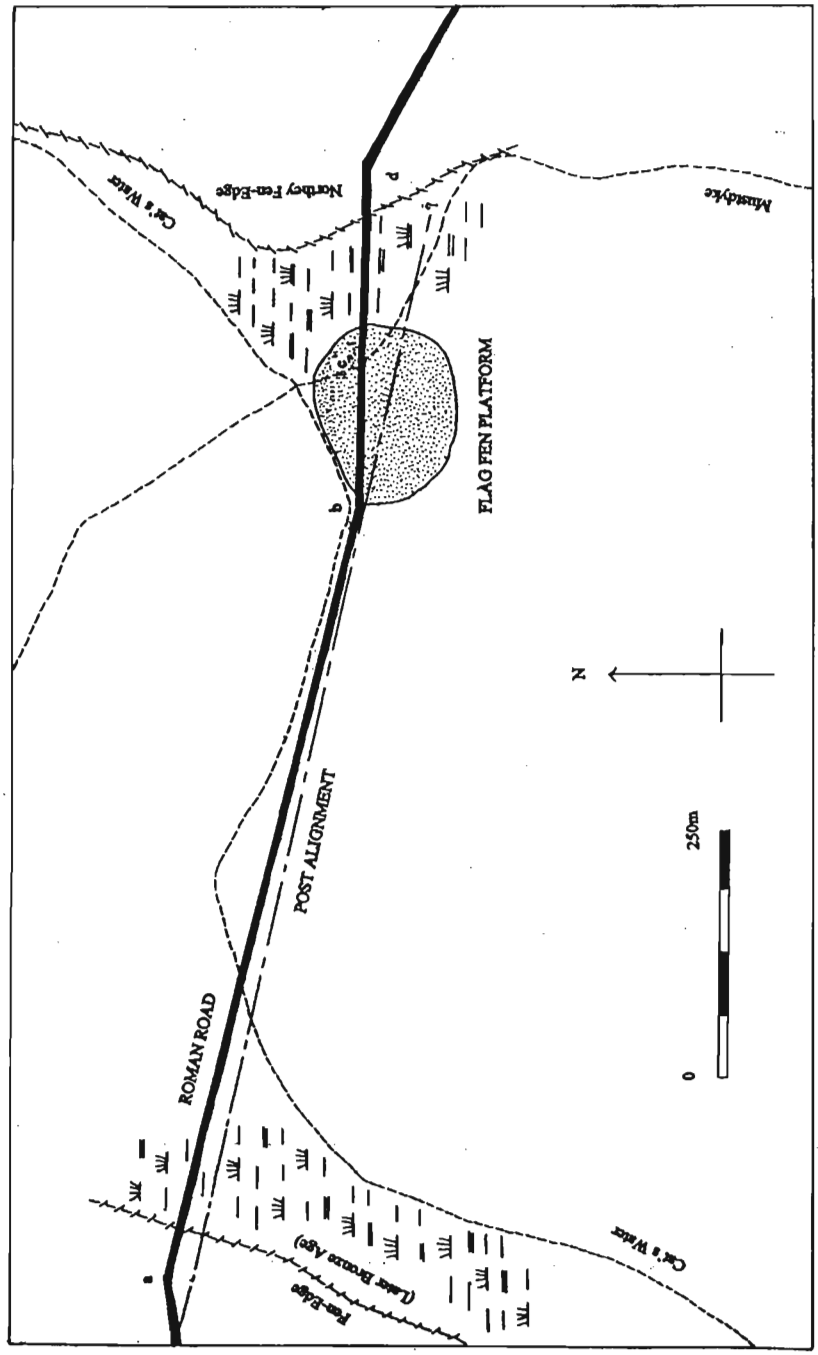


Figure 2 Route of the Fen Causeway running eastwards from Fengate to Whittlesey island

prolonged fresh-water flooding. Overall, this phase represents a considerable upgrading of the original road. Not only was it wider than its predecessor (now 8 metres in width, cf. the previous 5.6 metres), but the foundations were doubled in thickness. Despite the discrepancy in scale, it is interesting to note that both phases were constructed in essentially an identical manner, with a gravel base and strapping reinforcement. Was this a standard army engineering response to building a road across unsound ground?

Phase II exhibited evidence of repair. At the centre of the road, where the camber should be at its highest, there was a dip in the road surface, lined with a very fine particled silt, distinct from that sealing the surface as a whole (context [003]). Within this dip was a lens of gravel (context [004]), which seems likely to represent a patch in the road surface. It is possible that this repair is an indication of problems with the road's stab following the Phase II enlargement. Perhaps the Fen Causeway suffered from problems familiar to motorists today with many modern fen roads similarly afflicted with pot holes, uneven surfaces, and dangerous sinkage.

Phase II was capped by a thick layer of sandy silt (context [003]) which contained willow leaves of the *Salix caprea* (Goat Willow) variety (M. Taylor pers. comm.). The thickness of the silt deposit suggests a period during which the road was disused for some duration. Although there is no datable evidence from the Mustdyke section, the sequence of inundations at this site seems to have parallels with the situation at the Fengate sections further west. Here, on the basis of pottery evidence associated with the road, the second phase of the road was dated to the late first/early second centuries, with the road being sealed by a third century flood deposit (Pryor 1980: 147). The addition of an extra phase at the Mustdyke makes it impossible to establish a firm correlation, but given the general development in the fens in the fourth century (Salway 1970: 16) it seems unlikely that a western link in the Fen Causeway was out of use at that time. Thus I would identify the Mustdyke Phase III as a post-third century phase, making Phase II contemporary with Phase II of the Fengate section at the Fourth Drove subsite (Pryor 1980: 147), giving a possible early second century date for Phase II at the Mustdyke. This further suggests that the thick silt layer (contexts [003] and [011]) that sealed this phase was a result of the widespread flooding that occurred in the third century, (Bromwich 1970: 122). This hypothesis is strengthened by the very thickness of the silt: for an important artery to be out of use long enough to allow the development of such a substantial deposit over its marching surface implies serious and long term dislocation. The mid- to late-third century, with the disruptive effects of civil wars, and the possible breakdown of the artificial drainage system in the fens (Salway 1970: 16), may suggest itself as an appropriate period for a hiatus in road usage.

C Third Phase

The final phase of the Mustdyke section is by far the thickest deposit, comprising a mass of gravel (context [001]) that doubled the depth of the road foundations. Furthermore, the road was widened again, giving a final width of 9.6 metres. This thick deposit was heavily laminated, flaking away in thin, confused layers when excavated, but there was no evidence of multiple marching surfaces contained within the gravel. It is suggested that this layer represents a single construction episode, when a determined effort was made to build up the Fen Causeway above the level

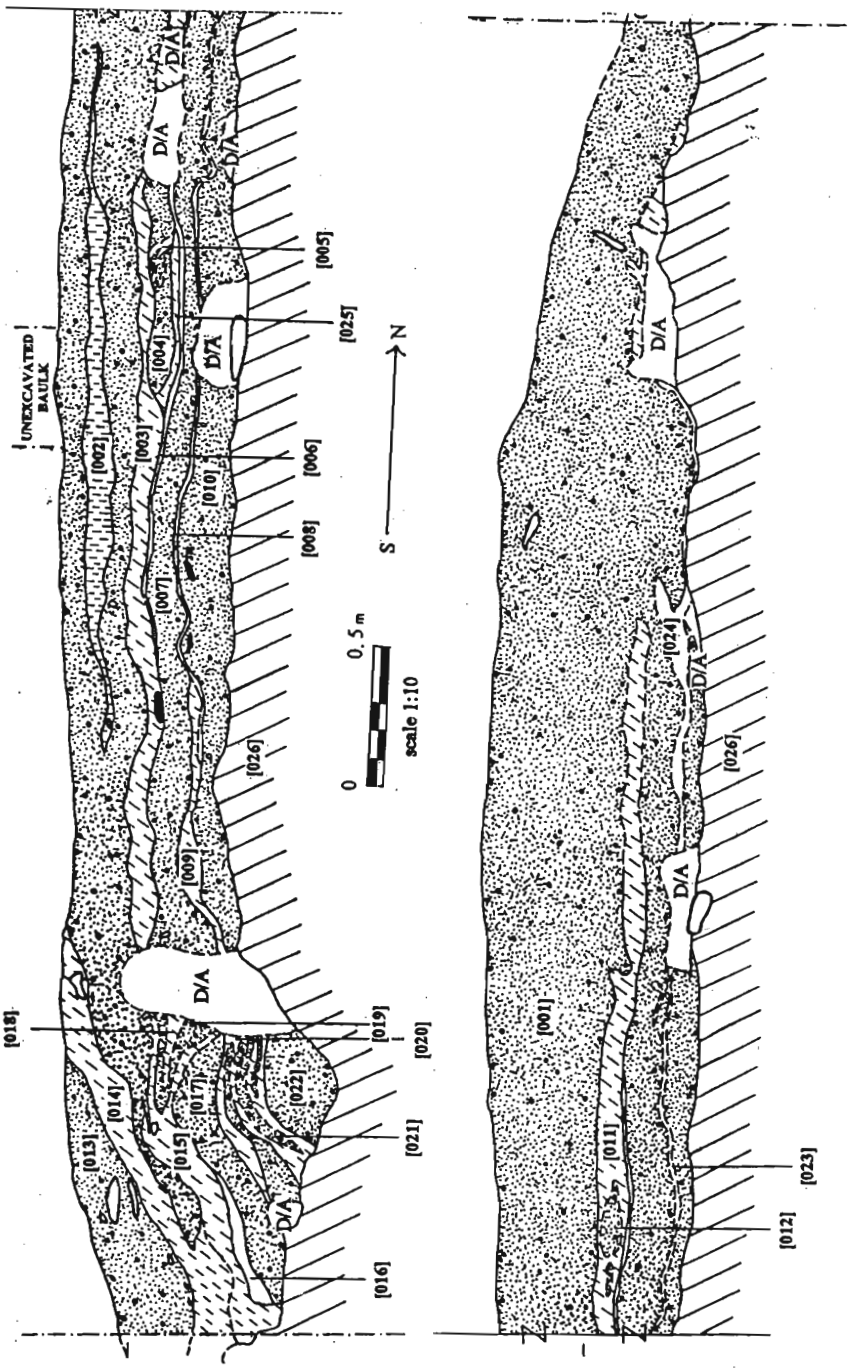
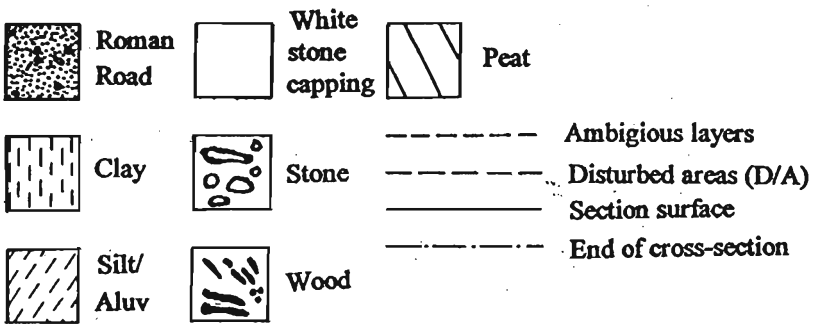


Figure 3 The Mustdyke section (see key on facing page)



Key to Figure 3

where it would be at risk from inundation. Thus many layers of gravel were hammered into place by a (putative) fourth century work force before a surface was finally constructed. However, the constraints of the excavation (see introduction) meant that the final surface of the road could not be fully revealed.

On the southern half of the Phase III road surface a great number of large flat stones were embedded in the upper gravel layer (context [001]), in the manner of a cobbled surface. They were discovered when cleaning back the final marching surface, but did not extend to where the section was cut, and thus they do not appear on the section drawing (Fig.3). As has been reported earlier, the section was badly weathered, which may account for the absence of cobbles on the section face. Over the northern half of the revealed surface (an unexcavated baulk lying between the two areas), the cobbles were surfaced with lime mortar. The stone used for the cobbles was of poor quality and easily shattered, and the cobbles themselves were unworn. Accordingly, it is therefore suggested that the cobbled surface was used only for a short time. Possibly the cobbles proved to be too weak to perform their function, with some of them fracturing in situ, the surface subsequently being reinforced with a layer of mortar.

Overview

The general nature of the Fen Causeway means that there are essentially two types of road, built in sections of varying lengths, lying end to end across the East Anglian fens; i.e. those sectors crossing the gravel islands, and those crossing the intervening fens. This paper is particularly concerned with the road as it crosses peat fen, as it was here, along its vulnerable stretches, that the road was most often in need of adaptation and rebuilding, thus providing clues as to the general pattern of development of the communication systems of the Fenland area.

Before entering into a more general discussion, it would be helpful to look at the development of the Flag Fen stretch in some detail. The Flag Fen road, as it runs from Fengate to Northey (the most westerly part of Whittlesey island), is the most westerly of the 'fen stretches' and unlike other stretches across open peat (for example, Eldernell to Grandford) the road does *not* take the shortest route across the fen. It kinks to meet the line of the Bronze Age post alignment beneath the peat and

to cross the platform of the main Bronze Age monument, a large area of waterlogged wood at approximately ± 0.5m OD. It has been suggested (M. Taylor pers. comm.; see Fig.2), that in the early conquest period the presence of the Bronze Age waterlogged timber beneath the drying peat surface would have provided extra stability to this area of the fen and accordingly a path across the area of the Bronze Age platform would have appeared particularly attractive.

The suitability of the route chosen for the road is demonstrated by the comparative height above sea level of the road surface at two locations. Where the Causeway was sectioned at Fengate (Pryor 1980: 146), the road lay at approximately +1.65m OD and at this point must still be considered to be crossing the dry marginal land of the fen edge. By the time the road reaches the Mustdyke section above the Bronze Age platform in the midst of Flag Fen) its height above sea level has *risen* to ± 1.89 m OD, and not fallen as might be expected. The structure of the road was by this point still so substantial, particularly by its final phase, that a significant amount of wooden rafting would have been required to support its weight if the fen had still been significantly wet at that time. As such rafting is not apparent, it is fair to suppose that the peat over the Flag Fen Bronze Age monument was and stable by the onset of the Roman period. As discussed above, the initial Phase I road was constructed and subsequently used without noticeable difficulty, and it was only when the more substantial second phase was constructed that problems became apparent. However, when other fen sectors of the road are taken into account, it is noteworthy that when problems arose that demanded reconstruction, then different route was followed from that adopted originallv by the first Roman engineers (Silvester 1992: 113; Hall 1987: 57). Phases II and III at Flag Fen, however, were built directly over Phase I, the implication being that although there may have been problems with the road's course between Fengate and Northey, there was no obviously superior alternative to the chosen route.

Although the physical evidence for the Fen Causeway at Flag Fen may now be clearer, it remains necessary to address the circumstances surrounding the construction of the road and its function. The exact date for the original construction of the Fen Causeway is a matter of debate, although it seems fairly certain that it was constructed sometime in the first century AD. The long hypothesised and recently proven fort of probable Neronian date at Grandford, on March island (Potter 1981: 85; Potter pers. comm.) outlined by a kink in the Fen Causeway), would (on the grounds of its existence influencing the path of the road) predate the road, thus giving a post- (or very late) Neronian date for the Causeway. A very worn Vespasianic coin found beneath the road as it passes Eldernell (Garrood 1938: 76-7) is considered to 'suggest that a trackway existed here in the early stages of the road and that it was built by the early second century' (Hall 1987: 76-7). This suggests that some form of communication route existed from perhaps as early as the Neronian period but was not fully consolidated until, according to the evidence from Eldernell, the early second century. In addition to the Eldernell 'trackway', Hall discusses the existence of two canals of Roman date stretching from Eldernell to Grandford. Hall supposes that one canal is earlier than either the road, or the second canal. Potter (1981 131) considers the road to have a probable post-Boudican date, and believes that the evidence from Estover (Jackson & Potter 1996: 51-53) does not contradict this hypothesis. Gurney (1986 135) also gives a probable Neronian date for the first phase

of the road. Although the available evidence may not be conclusive, there is a strong case for postulating that the road was a Neronian development.

Silvester (1992 113), in his discussion of the road at the London Lode site (in its eastern sector), has much to say about the early road. Here the Causeway began life as an unstable (and quickly superseded) stretch of road across open fen. This road takes the straightest course across soft ground with little consideration of the topography in the surrounding area and is, in short, a typical 'fen stretch' of the road. According to Silvester, the Rodham Farm Canal was built after this length of road had been constructed. Thus a brief survey of the principal available evidence demonstrates that the 'road', in its earliest incarnation, especially on 'fen stretches', was a piecemeal collection of tracks and waterways. This might in itself be a clue to the developments in central Fenland in the middle of the first century AD.

Hall (1987: 41) also discusses at some length the early Roman canal system (as detected at London Lode Farm). He describes the process whereby the early canal system (advanced as the first mode of transport across the fens) was dug from island to island across the peat because the cutting of this soft medium was comparatively easy. The silting of these canals, vulnerable to choking by the Terrington silts which were still mobile at this time, rapidly converted them into 'roddons' (silted watercourses characteristic of many areas of Fenland), which would have provided an ideal firm bedding for the road system that then superseded the failing network of waterways. It can be seen that along most 'fen stretches' of the Fen Causeway, the road was associated with a canal. This, however, is not the case in the Flag Fen basin, the first western link in the Fen Causeway chain across soft ground, and it is legitimate to ask why this might be so. Simply, the answer might be that the Romans never needed to construct a canal across the Flag Fen basin as the ground was firm enough (and high enough) to support a road from the outset. Thus the lack of a canal in this sector may be attributable to the purely local circumstance of the stabilizing effect of the Bronze Age archaeology beneath the surface.

No date can be ascribed to the canal system, perhaps in part because the canals never formed a unified system but were constructed individually over a period of time. It seems clear from the Eldernell to Grandford stretches that at least some of the canals were early, the Fen Causeway proper having been built on the silt roddon of a defunct canal (Hall 1987: 57). If Potter (1981: 131) is correct in his suggestion that the Causeway was constructed (for constructed, read 'consolidated') out of an already existing, but fragmentary, route after the Boudican revolt, then the canal system must, being earlier than the Causeway, pre-date the military difficulties of AD 60/61. Furthermore, it seems difficult to envisage a canal being constructed between Eldernell and Grandford without any linkage to the rest of the communication system of early Roman Britain. The lack of a canal across Flag Fen leads to the conclusion that Phase I of the 'Fen Causeway' at the Mustdyke section is actually contemporary with the canal system which developed further to the east and was built to link the Central Fenland waterways with the higher ground to the west. The first road across Flag Fen may therefore pre-date Boudica's uprising, simply being incorporated into the 'Fen Causeway' after AD 60/61.

As already noted, the Flag Fen road followed the same path as the original Phase I

route in its later phases. The situation at London Lode provides an interesting point of comparison, demonstrating uncertainty amongst the Roman engineers as to the appropriate course to be taken. Two routes, a northern, straight route and a southern, more circuitous but stable-footed one, exist there, along with a canal. Silvester (1992: 113) suggests that the northern road came first, followed by the canal, with the southern route adopted as the final solution to the communication problems across this sector of the fen. Once the first road had become too waterlogged to maintain, it was replaced by a canal and when this waterway subsequently silted up, the final (southern) road was built upon the levée of the defunct waterway. This second road in turn, also succumbed to flooding and was refurbished, though with less skill than in earlier phases, a situation reminiscent of the Phase III road at Flag Fen. It is possible to see that the piecemeal and often erratic nature of the fen route persisted throughout the road's active life as well as being a principal feature of its initial creation. Along those stretches of the Causeway that do not cross solid ground, there must have been persistent uncertainty about the most appropriate course, except, that is, in the section across the Flag Fen basin. From Fengate to Northey the route remained certain, making this the most durable 'fen stretch' of the entire road.

Conclusions

A brief summary of the road sequence established so far would be helpful at this point. At some early date, probably before the Boudican revolt, a minor road was constructed from the hinterland down through the recently abandoned(?) settlement at Fengate (Pryor 1984: 227- 28), and out across Flag Fen. This road was designed to link with the waterways under construction in central Fenland. Flag Fen at this time was moderately dry on the surface and this, combined with the presence of the Bronze Age archaeology beneath, provided enough stability at ground level for the road to be constructed with little difficulty. The road was built up with gravel and strengthened with round wooden rods. The surface was of compacted gravel.

In the late first or early second century, the road was enlarged, both by being widened and the foundations deepened. This second phase was also strengthened by wooden rods and surfaced in gravel. However, subsidence caused potholes on the road surface which were patched to keep the marching surface in order.

At some point, possibly in the third century, Roman administration in Fenland faltered, artificial drainage broke down resulting in widespread flooding. The road across Flag Fen was inundated and remained out of use for some time. However, the original choice of route for the road was a good one and when order began to return to the fens, probably not until the very end of the third century or the beginning of the fourth (Salway 1970: 16), the rebuilt road assumed the same course as its predecessors. As evidenced at both Flag Fen and London Lode, this fourth century road was a hasty, improvised affair, with gravel hammered into place, and at the Flag Fen end, a poorly cobbled surface reinforced with lime mortar. It was this structure that was to serve until the end of the Roman period.

In assessing the importance of the Flag Fen stretch of the road in particular, it can he suggested that Phase I would have linked the canal at Eldernell with the communication network of early Roman Britain. This would support the hypothesis that the Fen Causeway as a whole only evolved piecemeal, consolidating into a

unified 'route' perhaps only after the Boudican revolt. It might well have been the need for greater mobility through the area in the years immediately following the revolt that prompted this development.

In several ways, the road at Flag Fen can be seen as being a-typical for a stretch of road across the fen. It sticks consistently to its original route; it was never associated with a canal; and unlike other such lengths of the road, it changes direction suddenly, out on the open fen, thus *not* taking the shortest route across the peat. All of these observations are to a certain extent explained by the inherent stability of the Flag Fen route. This stability in an environment of instability arises because the peat was underpinned by archaeological deposits already a millennium old. Indeed, the Roman road itself seems to have provided a corridor of firm land for the droving of livestock in the medieval period (Halliday 1986: 2), and even the modern visitor to Flag Fen drives along an access road that follows the exact course of its Roman predecessor.

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