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# ROMAN FORT ENVIRONS

# G1632

Report number : 416



Ymddiriedolaeth Archaeolegol Gwynedd Gwynedd Archaeological Trust

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Prepared

By

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Ymddiriedolaeth Archaeolegol Gwynedd Gwynedd Archaeological Trust

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# G1632 ROMAN FORT ENVIRONS

#### **1. INTRODUCTION**

One of the most noticeable signs of the Roman occupation of North Wales is a network of forts, often visible as well-defined earthworks, sited at tactically important points within the landscape (Fig. 1). All of the surviving forts so far discovered in Gwynedd have been designated as Scheduled Ancient Monuments and as such have a high level of statutory protection. In many cases, the scheduled area only extends as far as the edge of the visible earthworks. A great deal of evidence has accumulated, both in Wales and further afield demonstrating that Roman forts should not be seen as standing alone in the landscape but should be viewed as the centre of a wider area of both military and civilian activity. Evidence from cropmarks, rescue excavation and chance finds has revealed the presence of extramural remains at several forts in Gwynedd but the evidence is in general fragmentary. Only the *vicus* at Caerhun, some extramural remains at Tomen y Mur, the military complex at Llanfor and a small extramural area at Caer Gai have been designated as Scheduled Ancient Monuments. Several specific examples of damage or threat to Roman fort environs have been recorded:

(i) Agriculture and the erection of associated buildings have caused disturbance at both Cefn Caer and Caer Gai.

(ii) Housing has destroyed a large part of the annexe at Brithdir and much of the possible fort at Aberffraw.

(iii) A large part of the vicus at Segontium has been lost due to urban expansion.

(iv) The fort at Pen Llystyn and part of the surrounding area were destroyed by quarrying in the 1960s.

An increased knowledge of the extent and character of the extramural remains could allow greater protection to be given to Roman fort environs either by statutory protection, a better informed planning process or in the case of agricultural land better land management.

The present project aims to identify the extent and character of the archaeological remains around the Roman forts of Gwynedd, to assess their condition and present management regime and to recommend management options.

It is also hoped that the survey can add to the body of knowledge about Roman forts and their environs. This will hopefully allow comparative work to be carried out, examining the layout and development of *vici* and other extra-mural structures and perhaps identifying regional trends. There is also the possibility that evidence for continued use of *vici* into the Early Medieval period may emerge from this study.

Davies (1990) identifies a number of additional research objectives in 'Military Vici' (in Burnham and Davies Conquest Co-existence and Change, Recent Work in Roman Wales);

(i) The desirability of obtaining plans of vicus buildings and the differentiation of those of specifically military origin from the civilian.

(ii) The function of buildings including mansiones.

(iii) Understanding the range of activities undertaken by a garrison outside the fort. And by vicani in manufacturing and industry

(iv) Information on religious and funerary practice - shrines temples and cemetery evidence.

#### 2. METHODOLOGY

#### 2.1 Desktop study

Ten Roman forts have been positively identified in Gwynedd along with one possible fort at Aberffraw and a fortlet at Brithdir. All of the forts have been surveyed and most have been excavated to some extent. All available information from both published sources and the Sites and Monuments Record was collected. In addition to this, tithe maps and schedules were consulted along with readily available estate maps. Information from aerial survey was obtained from RCAHMW and Cambridge University aerial photographs were re-examined.

### 2.2 Fieldwork

Fluxgate gradiometer survey provides a relatively swift and completely non-invasive method of surveying large areas. Roman military sites are well suited to this technique as significant magnetic enhancement of the soil is an inevitable result of the day to day activities in a Roman fort. The recent survey of the Roman Military complex at Llanfor by Snowdonia National Park and G.A.T. (Crew 1997) demonstrates the value of gradiometer survey. The survey detected a wide range of features associated with the fort and its outworks including ribbon development along one of the roads leading from the fort indicating the presence of a *vicus*.

Roman sites are relatively easy to detect using gradiometer survey but other factors such as soil composition and the type and proximity of bedrock can render sites unsuitable for survey. It was initially decided to carry out small test surveys on three sites to determine suitability for survey (see also discussion in section 3.3, below). These were carried out at Cefn Caer (Pennal), Caer Gai and Caerhun and all sites produced acceptable results. Aerial photography at all three sites has provided a limited amount of information about their environs and suggests the presence of quite extensive extramural activity (Frere and St Joseph 1983). The scheduled area at Caerhun extends to 400m beyond the fort and includes the *vicus*. The extramural remains at Cefn Caer and Caer Gai are less well documented than at Caerhun and for the most part have no statutory protection. It was therefore decided to concentrate on these two sites.

#### Instrumentation

All geophysical work was carried out using a Geoscan FM36 Fluxgate Gradiometer. This instrument detects variations in the earth's magnetic field caused by the presence of iron in the soil. This is usually in the form of weakly magnetised iron oxides which tend to be concentrated in the topsoil. Features cut into the subsoil and backfilled or silted with topsoil therefore contain greater amounts of iron and can therefore be detected with the gradiometer. This is a simplified description as there are other processes and materials which can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Strong readings are also produced by archaeological features such as hearths or kilns as fired clay acquires a permanent magnetic field upon cooling. Not all surveys can produce good results as results can be masked by large magnetic variations in the bedrock or soil and in some cases, there may be little variation between the topsoil and subsoil resulting in undetectable features.

The Geoscan FM36 is a hand held instrument and readings can be taken automatically as the operator walks at a constant speed along a series of fixed length traverses. The sensor consists of two vertically aligned fluxgates set 500mm apart. Their Mumetal cores are driven in and out of magnetic saturation by a 1,000Hz alternating current passing through two opposing driver coils. As the cores come out of saturation, the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high frequency of the detection cycle produces what is in effect a continuous output (Clark 1990).

The gradiometer can detect anomalies down to a depth of approximately one metre. The magnetic variations are measured in nanoTeslas (nT). The earth's magnetic field strength is about 48,000 nT, typical archaeological features produce readings of below 15nT although burnt features and iron objects can result in changes of several hundred nT. The machine is capable of detecting changes as low as 0.1nT.

#### Data Collection

The gradiometer includes an on-board data-logger. Readings in the Roman fort surveys were taken along parallel traverses of one axis of a 20m x 20m grid. The traverse interval was one metre. Readings were logged at intervals of either 0.5m or 0.25m along each traverse giving 800 or 1600 readings per grid.

#### Data presentation

The data is transferred from the data-logger to a computer where it is compiled and processed using Geoplot 3.0 software. The following two display options are used in this report along with an interpretation drawing.

# a) X-Y plot

Each traverse is shown by a line trace. These are presented side by side allowing the full range of data and the shape of any anomalies to be seen.

#### b) Grey-Scale

Data values are represented by modulation of the intensity of a grey scale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed.

## Data Processing

The data is presented with a minimum of processing. High readings caused by stray pieces of iron, fences, etc are usually modified on the grey scale plot as they have a tendency to compress the rest of the data. The data is however carefully examined before this procedure is carried out as kilns and other burnt features can produce similar readings. Corrections are also made to compensate for instrument drift and other data collection inconsistencies. Any further processing is noted in relation to the individual plot.

### 3. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

In 43AD, the Emperor Claudius initiated the Roman conquest of Britain. The initial campaign was successful in subjugating the southern British kingdoms but probably had little impact on Wales. Its mineral wealth and important tactical position meant that invasion was inevitable and in AD 47 the army under the governorship of Ostorius Scapula began a campaign against the Deceangli of north-east Wales. A protracted and difficult campaign then ensued against the Ordovices and Silures culminating in an attack on Anglesey by Suetonius Paulinus in AD 60. The Boudican revolt in East Anglia, however, resulted in the redeployment of the legions and much of the territorial gains in North Wales were lost. The pre-Flavian campaigns are well documented by Tacitus but the archaeological record in Gwynedd is sparse. A series of marching camps would be expected to reflect the progress of the campaign. No archaeological evidence for the campaign against Anglesey has emerged and the marching camps at Derwydd-bach, Penygwryd and Tomen-y-Mur remain undated and could well be Flavian. The complex of camps, possible stores base and fort at Llanfor remains one of the best candidates for pre-Flavian occupation (Davies 1980). The fort had probably been abandoned by the time that the early Flavian fort at Caer Gai was founded but could still be associated with the early Flavian campaigning (Arnold and Davies 2000). The camps and store base appear to pre-date the fort suggesting an early date but hard evidence has yet to emerge. Pottery recovered from Cefn Caer fort at Pennal appears to be Pre-Flavian (Brewer 1978).

The attitude to the Welsh tribes changed significantly with the more aggressive policies of the new Flavian dynasty marked by the accession of Vespasian in 69. The conquest of all but the north-west of Wales was undertaken during the governorship of Julius Frontinus (AD 73-7). Cn. Julius Agricola became governor in AD 77 and was immediately faced with a rebellion by the Ordovices. The rebellion was crushed; Tacitus records that 'he cut to pieces almost the whole fighting force of the nation'. Agricola went on to conquer Anglesey thus extending Roman control across the whole of Wales. The network of forts and roads that can be seen across Gwynedd were mostly founded in the early Flavian period. The as yet undated fort at Llanfor may have been founded during the initial Frontinian campaign (Arnold and Davies 2000) and Ceramic evidence from Brithdir (Hopewell 1997) suggests Frontinian occupation although the fortlet itself remains undated. Other signs of the Frontinian campaign are less certain, the marching camps so far discovered in Gwynedd may well date from this campaign and the more southerly auxiliary forts may have Frontinian origins. The auxiliary fort of Segontium, designed to form the hub of the Roman consolidation of North Wales is almost certainly Agricolan (Casey and Davies 1993) as is Pen Llystyn (Hogg 1968).

Agricolan campaigning in Scotland AD 78 initiated a period of gradual decline in the number of troops deployed in Wales. Many of the earth and timber forts were rebuilt in stone at the end of the first and beginning of the second century. In some cases, the reduction in troop numbers was reflected in a contraction in the size of the fort. Tomen-y-Mur was reduced in size by about a third (Jarrett 1969) and the fort at Pen Llystyn was replaced by a fortlet, possibly after a short period of abandonment (Hogg 1968). The reduction in the garrisons reached its peak in AD 110-25 under Trajan. It appears that the fortlets at Brithdir and Pen Llystyn were abandoned at this point (Hopewell 1997, Hogg 1968). Some forts have yet to be accurately dated but it seems likely that by AD 140 Segontium was the only auxiliary fort still in use in Gwynedd and this was operating with a much reduced garrison (Arnold and Davies 2000). Segontium underwent substantial rebuilding at the beginning of the third century. The mid to late forth century saw a dramatic increase in the levels of activity at Segontium and a reoccupation of Caerhun perhaps as a response to the threat posed by Irish Raiders (Casey and Davies 1993, Arnold and Davies 2000). It is probable that Segontium and the late naval base at Caer Gybi, Holyhead continued in use until about AD 393 when they were abandoned in response to the revolt of Eugenius in Gaul (Casey 1989).

#### 3.1 The role of the Vicus and ancillary buildings

The vicus was a point of contact between the military and civilian population. The large numbers of regularly paid troops within the fort naturally attracted traders and it can also be shown that goods for military supply were produced by the civilian population. Limited excavation within the vicus of Caersws auxiliary fort in Powys produced finds suggesting the presence of a tavern, along with copper and leatherworking workshops. Industrial debris have been recovered from an extensive settlement outside the walls of Segontium. Tanning and metal working areas in the annexe at Brithdir fortlet in Gwynedd could also be interpreted as being part of a vicus. Industrial debris makes such structures easy to identify, but the typical vicus contains number of buildings of indeterminate function and it is thought that these could have been eating or trading premises along with the houses of the civilian population (Sommer 1984). In many cases the fort became the nucleus of an extensive settlement and in the more prosperous areas of Roman Britain the settlements continued to prosper after the army had abandoned the site. Current evidence suggests that the vici associated with the forts in Wales were very much dependent on the income from the military and did not survive beyond the abandonment of the forts.

Other more specifically military buildings that might be expected to be encountered in the environs of Roman forts include a bath house, a *mansio* (official inn or guesthouse), burial monuments, shrines, a parade ground, practice works, roads and leats.

#### 3.2 The Roman Forts of Gwynedd

#### Aberffraw

Limited excavations in 1973 and 1974 within the village of Aberffraw revealed the bank and ditch of what appeared to be a previously unrecorded Roman fort (White 1979). A trench was cut through two phases of a ditch, rampart and road with Roman military characteristics. The first phase consisted of a ditch with a typical Roman Punic profile and an earth rampart. The ditch was subsequently back filled with rampart material. The second phase of activity comprised a V-shaped recut of the ditch along with a road interpreted as the *via sagularis* or intervallum road. No contemporary rampart was identified. The ditch subsequently silted up and a later, crude and probably post-Roman, rampart was erected. Unusually no closely datable finds were recovered from the excavation making definite interpretation of the site impossible. The Punic ditch, rampart, and possible *via sagularis* strongly suggest a Roman military installation but leave its status and extent open to question. White tentatively interprets the remains as evidence for an auxiliary fort associated with either the campaign of Paulinus in 61 or Agricola in 78. This can only be considered as an hypothesis based on well-documented history until further evidence emerges. There certainly seems to be little point in further investigations as part of the current project as the remains lay within a built-up area and the extent of the fort has not been determined.

## Pen Llystyn, Bryncir

In 1957, an hitherto unknown Roman fort was discovered in gravel workings at Bryncir. The site was destroyed within five years of its discovery by further gravel extraction. Much of the plan and history of the fort was recovered by RCAHM under less than ideal conditions as the extraction progressed (Hogg, 1968). Some limited excavation in the area of the commandant's house, *principia* and granaries was carried out but most of the site was recorded during episodes of topsoil stripping and large areas of the fort were not recorded.

The fort occupied a flat-topped hill, and was surrounded on three sides by marsh. Two main phases of activity were identified. An auxiliary fort, with dimensions of 117m x132m (1.55 ha) and following the standard layout, occupied the north-eastern part of the hill. This was founded c. AD 80 as part of the process of consolidation following the Frontinian victory. The fort was destroyed by burning about AD 90. Hogg suggests that the fort was destroyed by the Romans as part of a process of deliberate evacuation as a result of native pressure.

The site appears to have been abandoned for about a decade when an attempt was made to re-occupy the site. The beginnings of a smaller fort with an area of about 0.85ha were indicated by the presence of an unfinished ditch running across the centre of the old fort. The construction of the second fort was abandoned at an early stage and a 0.4 ha fortlet was constructed in the northern quarter of the old auxiliary fort. The internal buildings seemed to consist mainly of storage sheds suggesting that the fortlet maintained a small garrison and may have been little more than a storage compound. Finds were scarce from this phase of occupation and much of this area of the site was destroyed by gravel extraction without detailed recording of the features. Hogg argues that the fortlet was constructed between AD 100 and 130 and was abandoned soon after.

An annexe of about 1.2 ha was recorded at the south west of the fort. This had been mostly destroyed before the excavations took place but Hogg observed some topsoil stripping and a section across part of the area and could recognise no significant buildings. It was suggested that this area was free from buildings and was used as a camping ground for troops on the march. A ditch, two hearths and a posthole were identified in a level V-shaped area to the south-east of the 1st century fort. Hogg suggests that the ditch implies an intention to build an extra-mural settlement but also states that there were no buildings as substantial as those within the fort in this area suggesting that a *vicus* did not develop in this area. It is however, possible that lightly built structures could not have been detected during the soil stripping process. Hogg also noted that common extra mural features such as a bathhouse have yet to be identified at Pen Llystyn. The siting of such features must have been constrained by the undulating and marshy ground around the fort and it is possible that extra mural buildings may still survive in the more dry and level areas around the fort.

#### Canovium (Caerhun)

The fort of Canovium occupied a point of strategic importance, standing on the west bank of the river Conwy (which was accessible to ships of up to an about 100 tons) and being the last of the forts on the coastal road between the legionary fortress of Deva (Chester) and Segontium. A further road running south across the mountains joined Canovium to Caer Llugwy and Tomen-y-Mur.

The fort stands on a slight rise in the valley floor and is still visible as a square embanked enclosure of 140m x 140m, covering an area of 1.97 ha. The parish church of St Mary's and its graveyard stand on the north-eastern quarter of the fort. The area of the fort not occupied by the churchyard was excavated between 1926 and 1929 (Reynolds 1938). The first phase of defensive works comprised an outer ditch with a clay and rubble rampart presumably topped by a timber palisade. The rampart was subsequently cut back and faced with a stone wall and detached corner towers were added. The original ditch had silted up, suggesting a period of withdrawal, and the second phase ditch was dug further away from the fort wall. The dating of these phases of occupation has been problematic. Reynolds dated the fort to c. AD 80-145 with the second phase rebuilding of the defences occurring about AD 105-110. A reappraisal of the ceramic evidence by Dr Grace Simpson (1962) suggests an Antonine date for the second phase stone-built defences and abandonment in the late third or fourth century. Further reappraisal by G. Rodgers in 1977 casts some doubt on these hypotheses.

Reynolds also investigated a small annexe on the southern side of the fort which yielded some evidence of civilian habitation between AD 75 and 150. A bathhouse to the east of the fort was excavated in 1650 and 1801 (see Reynolds 1938) and cremation burials were uncovered both to the south-west and north-east of the fort (Gardner 1925). A dock is clearly visible on the bank of the Conwy to the north-east of the fort. Gardner records that the dock had 'been made use of in connection with the modern brick-works across the water'. Trial trenching in 1929 suggested but failed to prove Roman date for the dock. The scattered evidence for extramural activity was confirmed during the dry summers of 1975 and 1976 (Frere and St Joseph 1983). Parch marks revealed a road running from the *porta principalis sinistra* parallel to the river (Plate 1). Extensive signs of ribbon development along the road confirmed the presence of an extensive vicus. Further parch marks to the east of this confirmed the presence of buildings around the dock. A possible *mansio* within a walled enclosure was also visible to the west of the road.

#### Bryn-y-Gefeiliau (Caer Llugwy)

The fort stands on level ground within a bend of the Afon Llugwy on the line of the road between Caerhun and Tomen-y-Mur. The fort was partially excavated by Hall, Hemp, and Higson in 1920-22 (Hall 1932). The fort is roughly square with dimensions of 430 x 390 ft and close to 4 acres with an annexe of about 3 acres. The fort rampart was found to be stone faced with an earth or turf core, the walls being about 5ft thick and 5ft apart. The outer defences comprised two ditches and gateways were identified in the east west and south sides of the fort. The buildings in the interior of the fort had been extensively robbed for stone and only a small area was examined. Substantial buildings were identified in the annexe with good evidence for industrial activity. These buildings appeared to be part of a later phase of activity overlying pottery deposits dated to AD 90- 120. No evidence for occupation beyond AD 140 was recorded by the excavators but subsequent re-evaluation of the ceramic evidence by Dr Grace Simpson (1962) suggests that the abandonment could have occurred sometime between the late second and fourth century.

#### Segontium

Segontium was both the longest lived and most important auxiliary fort in North Wales. It was founded by Agricola in AD 77-8 and was not abandoned until the end of the 4<sup>th</sup> century. The fort has undergone two extensive excavations (along with several smaller investigations), the first by Wheeler in 1922 (Wheeler, 1924) and the second by Casey and Davies in 1975-79 (Casey and Davies, 1993). The 2.27 hectare fort was originally timber built. The defences and the internal buildings were rebuilt in stone in the first half of the second century. The barracks in the south-eastern quadrant of the fort were replaced in the second century by a substantial courtyard

house with its own bathhouse. Casey and Davies suggest that this was built for a high-ranking official such as a *procurator*. Several phases of rebuilding were undertaken, principally in the early 3<sup>rd</sup> and early and mid 4<sup>th</sup> centuries.

The long occupation and high status of the fort resulted in the growth of a substantial *vicus*. The possible stores compound of Hen Waliau still stands 150m to the west of the fort. This mid to late second century structure overlies vicus buildings (Boyle 1991).

Excavations by Gwynedd Archaeological Trust in 1976 (White 1985) revealed rectangular timber buildings standing within ditched enclosures aligned with a street system. These produced evidence for industrial activity such as tile making, metalworking, carpentry and leather working. A mithraeum and cemetery stood to the east of the fort.

#### Tomen y Mur

The fort at Tomen y Mur stands at a junction of two Roman roads at a height of 275m above sea level in the Vale of Ffestiniog. The 1.7 hectare fort was founded during the governorship of Agricola and was timber built with earthen ramparts. In AD 120 the defences were rebuilt in stone and the fort reduced in size to 1.3 hectares. It appears that the Tomen y Mur was not garrisoned for long after this and there is no evidence to suggest that it was in use after c. 140. A medieval motte was built on the ramparts of the smaller fort which was reused to form a ready-made bailey.

The most remarkable features of this site, however, comprise an exceptionally well preserved series of ancillary buildings that are all visible as earthworks. A small *vicus*, bathhouse and *mansio* stand

outside the south-east gate. A bridge abutment leads to a Roman road beside which is an enclosed cemetery. To the north-east of the fort stands a parade ground with possible surviving *tribunal* (command or saluting base), a small amphitheatre, a leat providing water for the fort and a series of burial mounds. The somewhat remote upland siting of this fort, away from the effects of intensive agriculture, has ensured the survival of a well preserved and visible military and civilian complex. This gives a good indication of the range of features that could be expected to be found around the less visible lowland sites.

#### Brithdir

A fortlet is visible as a 54m square platform standing on the Roman road to Caer Gai and overlooking the probable route of the road to Tomen y Mur. Excavations by Gwynedd Archaeological Trust in 1974 (White 1978) and 1991 (Hopewell 1997), to the south of the fort along with geophysical survey have revealed a wide range of extramural activity. The first activity on the site appears to have been Frontinian and was possibly short lived. Subsequent phases of activity saw the construction of a bathhouse and *fabrica* before abandonment between AD 110 and 130.

#### Caer Gai

Caer Gai auxiliary fort (Fig. 2) stands on a rounded spur on the left bank of the river Dee close to the south- west of Llyn Tegid. The northern quarter of the fort is covered by a farm buildings and a seventeenth century manor house. The fort is clearly visible as a rectangular earthwork 128m x 120m with the bank standing to a height of 3m on the south-west. The south-west side and some of the north-east side retains a recut ditch. Parts of the original rampart wall can be detected in the present-day field boundaries.

Excavations in the southern part of the fort in 1965 revealed three phases of activity inside the turf rampart (Jarrett 1968). The rampart was datable to AD 70-85. Two phases of wooden barracks were identified with a further later anomalous phase of building on a different axis. Salvage excavations by G.A.T. in 1982 in the north-west rampart of the fort revealed three phases of defences; the turf rampart identified

in 1965, a mid second century stone rampart cut into the original rampart and a massive possibly post Roman earth rampart (White 1986). A description of the fort in the Report of the Annual Meeting of the Cambrian Archaeological Association in 1884 is interpreted by White in an earlier paper (White 1985) as suggesting the presence of a post-Roman citadel. The report states that 'At a little distance [from the *vallum*] an outer dyke encloses a considerable circuit, probably 6 or 8 acres; and on the northwestern side are large quantities of boulders, some standing as if they formed a scarpment or chevauxde frise, and others dispersed as if they had been the foundations of some primitive buildings'. A further discussion by D.R. Thomas in 1885 (Thomas 1885 (i) and (ii)) includes a copy of an 'Old map of Caergai' (Fig. 3) that appears to show a curvilinear outer defence on the west and north of the fort along with local field names. White interpreted the curvilinear feature as the 'outer dyke' and the field name Wern Dwyndir (rough or hummocky land) as being the area of large boulders.

This interpretation is possible but not entirely convincing; the outer dyke is described in the 1884 report as enclosing a considerable circuit of between 6 and 8 acres, it is not clear if this includes the fort but this does not appear to correspond to the small enclosure shown on the 'old map'. Thomas (1885 (i)) also states that 'at some distance an outer embankment may be traced for a considerable portion of its circuit, having once enclosed many acres on the crown of the eminence on which it stands'. It should also be noted that Wern Dwyndir is on the east of the fort and not on the north-western side.

A wide range of extra-mural activity has been identified at this site. Robert Vaughan of Hengwrt (1592-1666) recorded the discovery of a coin of Domitian and an Early Christian stone with the inscription HEC IACET SALVIANVS BVRSOCAVI FILIVS CVPETIAN (see Thomas 1885 and White 1985). Edward Llwyd recorded in *Parochialia* (c.1665) that 'There was a chapel formerly in the field known as Kae'r Kapele, where there is a pavement when dug up'. Thomas (1885 (i)) also records that 'Bones have been dug up lately in this plot of ground, near the traces of the foundations of a building about 15 feet square, near the centre of the field. The outlines of the building are visible on the surface when the grass is scorched. This field is also called "Y Fonwent" or the graveyard'. A shrine consisting of a burnt square structure and part of an inscription in the name of the First Cohort of the Nervii possibly dating from the early to mid second century was discovered to the north-east of the

fort in 1885 (Thomas 1885 (ii)). Flavian burials were also found to the north-east of the fort (Nash Williams 1950).

Aerial photography (Plate 2) has revealed evidence of road systems running from the south-east and north-west gates, along with a road running diagonally from the north-east gate. The outline of a building at the south-west end of Cae Capel could also be seen in enough detail to interpret it as a bath house (St Joseph 1977).

#### Cefn Caer - Pennal

The fort at Cefn Caer (Fig. 4) stands on a low spur about 100m north-east of the marshy flood plain of the Dyfi. The fort commands a view of both the highest tidal point of the river and its first good crossing point and was probably built in this location in order to allow the unloading of sea borne supplies (Bosanquet 1921)

The ramparts are clearly visible where they coincide with field boundaries to the south-west and northwest. Elsewhere they have been reduced to low spread banks. The sub-Medieval farmhouse of Cefn Caer occupies the western corner of the fort and a minor road running west from Pennal bisects the northern corner. A mound in the centre of the earthworks probably represents the remains of the *principia*. Cefn Caer was first recorded in 1693 by Maurice Jones, rector of Dolgellau in a letter to Edward Lhuyd. The remains appear to have been well preserved at this time:

The main fort was on the highest topp of the Hill and built quadrangular; and about it there was a strong wall and a broad ditch...And on the outside of the great ditch next the river Dyfi there were a great many houses built, and a little fort upon a lower banck which was built (as is supposed) of Brick, in that they are there very common. All the out walls are built of a rough hard stone,... From the fort to the water-side there is to this day a broad hard way paved with stones 10 to 12 yards broad in a straight line made through the marsh ground and meadow lands to the River side which is in length about 200 yards.

He also records a number of finds; a coin of Domitian, a little gold chain, a huge brass pan, a 'saphyr' [all from Cae Llwyn y Neuadd] and several pieces of lead and glass. He also collected local information stating that a well, built of lime and stone and at least '10 to 12 fathoms deep', had been found. It was also conjectured that the church at Pennal had been built with stones from the fort being built from 'rough stones with brick among them'.

Fenton visited the site in 1804 and recorded that the Vicar of Towyn had seen the Causeway running from Cefn Caer to the 'fordable part of the Dyfi opposite Garreg'. Fenton revisited the site four years later and 'Could see no ancient pitched way, unless the modern road to the River pursues the same Line'

There are local traditions of tiles, pottery, charcoal, masonry, charcoal and ashes being discovered on the site and in 1866 the Cambrian Archaeological Association made a small excavation and uncovered the remains of a well preserved hypocaust in the banks of the lane running in a southerly direction from the farm. They also recorded 'vast quantities' of ashes and charcoal in some of the hedge banks.

The only dating evidence from Cefn Caer is in the form of stray finds recovered from the site. A stamped tile attributed to the II Augustian Legion (AD 212-22) is said to have come from the fort (Nash-Williams 1969). The present owner Mr Elfyn Rowlands recovered two burnt central Gaulish lead-glazed bottles from the bank of the farm lane. These were reported as being pre-Flavian by R. Brewer of the National Museum of Wales (Brewer 1978).

#### 3.3 Suitability for Survey

From the above information, it can be seen that some fort environs are more suitable for survey than others. Both the possible fort at Aberffraw and Segontium fort in Caernarfon stand in built up areas and are unsuitable for survey. The rest of the sites have some potential and they are summarised below in order of priority.

(i) Cefn Caer There is very little known about both the fort and its environs and only the fort and a very small area around it have statutory protection.

(ii) Caer Gai Both aerial photography and occasional finds suggest the presence of a vicus to the north-east of the fort. The scheduled area only extends around the fort and a small possible annexe.

(iii) The environs of the now destroyed fort of Pen Llystyn The long-term expansion of the quarry continues to threaten the archaeology in this area and no significant Roman extra-mural remains have so far been identified. It would be expected that structures such as a bathhouse would have been present and that the destruction of such an easily identified structure would almost certainly have been noticed. This suggests that significant structures may still survive in the vicinity of the site of the fort. It should also be noted that there is some evidence of early medieval settlement on and around the site (Hogg, 1968 and Edwards and Lane 1988)

(iv) Bryn-y-gefeiliau fort and annexe No evidence for a vicus has so far emerged from this site and it is probable that extra-mural remains extend well beyond the scheduled area.

(v) Canovium (Caerhun) The line of a road with remnants of an extensive vicus was detected from aerial photographs. Initial investigations carried out in phase 1 of the project suggest that the area would produce good geophysical results. Geophysical survey would almost certainly reveal further details of the vicus and other extra mural structures allowing better management of the site and adding to our overall understanding of the fort and its environs.

(vi) Tomen-y-mur An extensive complex of Roman remains stands at Tomen-y-mur. Recent geophysical work by Snowdonia National Park on the fort itself has shown that the site has some potential for gradiometer survey.

(v) Brithdir Much of the area around the fort at Brithdir has undergone geophysical survey. It is however possible that further remains stand to the north and east of the fort.

#### 4. RESULTS

The survey was carried out in two phases. Cefn Caer was surveyed in October 2000 and most of Caer Gai was surveyed in December 2000. Survey conditions were not ideal, as the autumn of 2000 was the wettest on record. Work was frequently interrupted by torrential rain and flooding and was abandoned altogether for 6 weeks as the Caer Gai site was under water and the constant wet conditions had caused a severe malfunction in the gradiometer which required a major overhaul.

The gradiometer survey was carried out by the author with additional areas being surveyed by Mr John Burman of Arthog.

#### 4.1 Cefn Caer

An irregular area of approximately 500 x 300m was surveyed encompassing the whole fort and extensive extramural areas extending to between 50 and 250m beyond the ramparts. The survey was carried out in four separate areas that were divided by roads and field boundaries.

The data is presented as four separate trace plots showing the data with only minimal processing to remove the affects of instrument drift (Figs 5-8). The grey-scale plots were combined (Fig. 9) because many archaeological features were found to extend over several areas.

All four areas produced a similar range of results with relatively low levels of background noise. Ditches and roads produced weak and in some cases barely discernible anomalies. Buildings and occupation sites were visible as collections of strong anomalies many with readings of 20 to 30nT. Most archaeological anomalies produce readings of + 15nT. The higher reading from Cefn Caer suggest significant magnetic enhancement probably as a result of burning. This hypothesis is supported by the antiquarian references to charcoal and ash in the area of the fort. The surveyors also observed significant amounts of charcoal in an area of erosion in the northern corner of the fort. The very high readings around the edges of the survey areas were the result of fences, barns and, in one place, a cast iron bath.

A simplified interpretation plan was produced (Fig 10). This shows only the more definite anomalies along with outlines areas of more complex activity. It was felt that the grey-scale plot revealed the maximum amount of information and that any attempt to produce an interpretation plan showing all of the finer detail would tend to be over-complicated and obscure the weaker anomalies.

The most noticeable set of anomalies form the close to square outline (135 x 125m) of the fort immediately to the east of the farm buildings. The rampart (1) is visible as a spread of moderate to high readings. The highest signals, in the northern corner of the fort, appear to be a result of burning, and deposits of charcoal can be seen eroding out of the field at this point. A single ditch (2) stands immediately to the outside of the rampart this can be seen as a faint anomaly around the northern and eastern corners of the fort. A 17-20m wide space (3) separates the inner ditch from an array of three outer ditches (4) on the north-west and south west sides of the fort. This area produced the quietest responses in the survey suggesting that it had been deliberately kept clear of all activity in order to preserve the integrity of the defences. It is difficult to trace the multiple ditches around the north-west of the fort and the wide space between the inner and outer defences does not appear to be present. The fort ditches turn around the western corner of the fort to be lost amid the strong responses produced by the remains of the annexe.

The internal arrangement of the fort can be seen with a reasonable degree of clarity. The most striking feature is the well-defined *principia* (5) with dimensions of 25m x 28m. The typical elements of a first century *principia* (Johnson 1983) are all visible. The entrance on the south-west leads into a courtyard with a portico on four sides bounded by a cross hall at the rear. At the rear of the building stand a set of five rooms comprising a central shrine room (*sacellum*) with offices to either side. The outline of the building is very similar to the *principia* at Gelligaer (Boon 1969) and Penllystyn. The large mound in the centre of the field suggests that the *principia* is stone built.

The usual arrangement of roads within the fort is well defined. The *principia* opens onto the *via principalis* (6), running from north-west to the south-east across the centre of the fort. A short length of the *via praetoria* (7) can be seen running at right angles to the *via principalis* but this is lost under the farmyard before it reaches the gate. The *via decumana* (8) running from the rear of the *principia* to the north-eastern gate (*porta decumana*) is well defined. The *via sagularis* (9) running around the inside of the ramparts is also visible in places. Two buildings can be seen to either side of the *principia*. The building to the north-west (10) is only partially visible but appears to be a substantial rectangular building and is best interpreted as the *praetorium* (commander's house). The building to the south-east (11) is less well defined consisting of a mass of linear anomalies, some of which appear to be on a slightly different alignment to the rest. This area of buildings extends behind the *principia* as far as the *via decumana*. It is probable that the anomalies represent several phases of building. *Horrea* (granaries) are commonly found in this area of the fort but there is nothing that can be interpreted as such in the results here. An alternative interpretation is that the many cross walls represent the divisions in a complex building such as a *fabrica* (workshop).

Elsewhere in the *retentura* one block of *centuriae* (barracks) (12) can clearly be seen, with the officer's quarters standing towards the corner of the fort. Some of the cross walls dividing the rest of the building up to form the *contubernia* can also be seen. The expected opposite set of *centuriae* (13) are very poorly defined in an area of what appears to be plough dragged remains. Short linear plough scars cross both the internal buildings and the rampart.

The *praetentura* appears to contain three ranges of buildings, those adjacent to the *via principalis* are rectangular in plan (14) with some cross walls visible at the south-east along with a fair degree of internal complexity, which could again represent several phases of building. The internal walls are most pronounced in the south-western half of the building and the building could thus be tentatively interpreted as a stable block with the stalls in this side of the building. The end of a rectangular building (15) with somewhat curved corners can also be seen on the north-western side of the *via praetoria*. The rest of the space in the *praetentura* appears to be taken up by two ranges of *centuriae*. Building 16 is reasonably well defined with some visible cross walls but only the narrow plot taken by building 17 gives any guide to its form.

Only two gates appear on the survey. The *porta principalis sinistra* (18) is visible as a break in the ramparts on the south-east but no detail of guard towers etc. can be seen. The *porta decumana* (19) is even less well defined. The other two gates could not be surveyed as they lie within the garden of the house and the outer farmyard. Neither has been built over and they could be relatively undisturbed.

A subrectangular annexe with dimensions of 110m x 75m can be seen on the south-western side of the fort. The edge of the enclosure is defined by a steep natural drop and a ditch (20) appears to run along the base of the slope. The road from the *porta praetoria* divides the annexe in two. A substantial rectangular enclosure (21) or building, with dimensions of 42m x 40m and of uncertain function stands to the south-east of the road. The remains of stone walls standing to a height of around 0.4m can be seen in the sides of the farm track where it cuts the structure. A mass of high magnetic responses (22) defines the activity to the north-west of the road. Very little structural detail can be seen in this area but examination of the aerial photographs suggests the presence of a bathhouse. This hypothesis is supported by the fact that numerous pieces of Roman tile can be seen in the topsoil in the area suggesting that this is the site of the excavation made by the Cambrian Archaeological Association in 1866. The results from the geophysical survey probably represent a spread of tile and *pilae* all of which, being fired clay, will produce strong magnetic responses.

The most noticeable of the extra-mural features are a series of rectangular enclosures, probably delineated by ditches, running from the outer defences on the north-east side of the fort. The very well defined anomaly (23) just to the north of the modern road defines the northern edge of these features. The grey scale plot is a little misleading, as it appears to show the anomaly running alongside the road in area A. If the trace plot is consulted, it becomes obvious that the high responses here are a result of proximity to the fence and that the line of the feature probably runs along the modern road. A series of anomalies in area A (24) could represent the return of this feature, but the responses alongside the modern road are somewhat unclear. There does however appear to be at least one visible corner here. Another corner of a rectangular enclosure (25) can be seen on the inside of the (apparently) larger enclosure, but again only two sides can be traced. A further linear feature (26) along with an area of slightly increased noise can be seen to cross the inner enclosure close to the fort ditches. The multiple fort ditches in this area are not very well defined and it is possible that one, possibly the inner as it is on a slightly different alignment, could be part of the enclosures The function of the enclosures is unclear, they are obviously of a different phase to the outer fort ditches, they give the impression of cutting the outer ditch but this may be misleading. The road running from the porta decumana certainly appears to avoid the enclosures and the activity alongside the road also does not appear to extend into them suggesting that they were in use during at least part of the life of the fort. The function of these features is open to debate, the lack of noise and high responses seen over much of the survey area suggests that they were not used for the type of military or domestic activity seen in the fort and associated buildings and settlements. It is possible given the relatively level area in which these features are sited that the larger enclosure represents a small parade ground. There is no other level area that does not encroach into the marshes for some distance.

The rest of the extramural activity is centred on a series of roads running from the four gates of the fort. The extended via praetoria (27) runs through the annexe and then turns sharply to the south-east as it leaves the gate and appears to be leading towards the present road through the marshes. This suggests that the paved way noted in the early accounts of the fort may, as Fenton conjectured, follow the line of the modern road to the river. Beside the road at the very south of the survey area is a circular feature (28) showing very clearly on both the gradiometer results and the aerial photographs best interpreted as a stone built temple or tomb similar to that found at High Rochester (Bidwell 1997). The road running from the porta decumana (29) takes a sharp kink apparently to avoid features 23 to 26 before continuing in a north-easterly direction to the edge of the survey area. A considerable amount of activity (30), probably best interpreted as a vicus, can be seen alongside this road, concentrated at a distance of between 80 and 200m beyond the gate. The survey results consist mainly of linear anomalies between 10 and 15m in length running at right angles from both sides of the road with a spacing of 5 to 6m. These anomalies can, in places, be resolved into rectangular enclosures or buildings many of which contain a relatively strong single anomaly. Comparison with the results from Llanfor (Crew 1997), which clearly show rectangular plots or buildings containing a single anomaly interpreted as a hearth, helps to elucidate the Cefn Caer results. The basic structures seem to be similar in both cases although the somewhat confusing mass of anomalies in part of the Cefn Caer survey suggest that the buildings may have been rebuilt several times in different positions. The Roman occupation at Cefn Caer was almost certainly longer lived than at Llanfor and it would therefore be

reasonable to expect several phases of building within the *vicus*. It should also be noted that this part of the survey exhibits a series of faint linear negative anomalies (31) which run across the road and are probably a result of later agricultural activity. The road appears to fork at the south-western end of the vicus with one branch (32) bypassing the fort, presumably to connect with the road leading from the *porta principalis dextra*.

What appears to be a substantial rectangular building (33) with dimensions of 34 x 22m and at least one internal division, stands on the south-western side of the road leading from the *porta principalis dextra*. This could be tentatively interpreted as a *mansione* (official inn). The road beyond this point is joined by a further road from the south-west which appears to overlie the corner of the rectangular building. The road is also flanked on both sides by a series of small strong anomalies (34) similar to the possible hearths in the *vicus* to the north-east (see trace plots). There are however no buildings visible here. It is possible that the buildings have been ploughed out leaving only the stronger burnt anomalies (again c.f. Llanfor, Crew 1997). Initial impressions also suggest a series of quarry pits although the strong anomalies would only occur if they had been backfilled with strongly enhanced material such as burnt rubbish. The north-western corner of the northernmost survey area (area 4) also seems to show a length of parallel anomalies (35) consistent with a *vicus*. A road presumably runs along this alignment possibly to the south but the small area surveyed makes it difficult to be sure.

Several other anomalies on the survey are of interest. The southern part of the survey displays a crisscrossing series of linear anomalies (36) which could be drains ditches or tracks of unknown age. A linear anomaly, with a rectangular enclosure of 20m by approximately 30m at the western end (37) of it, can be seen towards the north-eastern end of the survey area. This may be a larger plot relating to a phase of the *vicus*, but could delineate the edge of another alignment of the road from the *porta decumana*. An intriguing linear alignment of 8 small of anomalies at a regular spacing of 15m (38) can be traced to the south of the modern road to the north-east of the fort. They seem to be too close together to represent a fence line and too far apart to be the result of modern features such as telegraph poles and remain open to interpretation.

It should be noted at this point that the interpretation of the geophysical results should be seen as a series of hypotheses that can be tested by excavation, comparison or other techniques. In The Case Of Cefn Caer, some interpretations are more definite than others. The interior of Roman forts follow a standard layout with only minor variations between sites. The interpretation of the more well defined anomalies, e.g. anomaly 5 interpreted as the principia, can therefore be supported by comparison with other sites. The interpretation of the extra mural anomalies is less certain. Comparison with other geophysical surveys suggests that the anomalies interpreted as roads and a vicus can indeed be interpreted as roads and areas of settlement. The dating evidence is, however, mainly circumstantial and is based on the proximity of the anomalies to the fort, the apparent Roman character of some of the features and the way that some features appear to have been constructed in order to avoid others thus giving a crude relative chronology. It can therefore be said that it is likely that most of these features are contemporary with the fort. It should however be noted that Pennal was the Medieval commotal centre of Ystumanner. A motte stands to the south-west of the village but this does not necessarily mean that the Llys and other Early Medieval occupation was centred around this area. It is possible that the fort provided a focus for occupation long after its abandonment by the Romans and that some of the anomalies represent Early Medieval features. The definite interpretation of these features depends on further study. Limited excavation could probably provide enough dating evidence to conclusively prove or disprove the existence of a Roman vicus.

#### 4.2 Caer Gai

Evidence from aerial photographs and chance discoveries suggested that the most likely site for a *vicus* is in the large field to the north-east of the fort. A roughly rectangular area with dimensions of 140 x 170m, encompassing most of the field was surveyed. The results are presented as a trace plot (Fig. 11), a grey-scale plot (Fig 12) and an interpretation diagram (Fig 13).

Background noise levels were generally low and archaeological features produced fairly clear anomalies. The most obvious anomaly consists of a road (1) running across the field. The road presumably runs out of the fort gate and turns towards the east-south-east close to the edge of the survey area. A *juncus* free terrace in the somewhat marshy field to the north east of the survey area

appears to represent a continuation of the road. Activity of a form that is very similar to that at Cefn Caer can be seen alongside the road. Short linear anomalies (2), probably representing the sides of rectangular buildings or plots, can again be seen running at right angles to the road. Several strong anomalies, perhaps indicative of hearths, can be seen alongside the road. These seem to be associated with the rectangular structures along the eastern part of the road. A well-defined group of six possible hearths (3) with no associated rectangular structures can be seen at the western end of the visible road. Comparable anomalies were detected at both Llanfor and Cefn Caer (see above) and have been interpreted as ploughed out buildings with only the strong anomaly produced by the hearth surviving. A well-defined 35m long anomaly (4) appears to overlie the road with an area of very high responses (5) standing to the north-west of this. A further linear anomaly (6) stands to the north-west of the area of high readings. The two linear anomalies appear to be associated forming the corner of a rectangular enclosure with (detectable) dimensions of 45 x 50m. The function of the enclosure is unclear although the southern side appears to belong to a different phase of activity to the road The high readings in feature 5 are almost certainly a result of burning. The southern part of this area of high responses appears to be a square structure with dimensions of 14m x 14m, possibly representing the foundations of the burnt wooden shrine discovered in 1885 (Thomas 1885). There appears to be a slight kink in the road at this point suggesting that the road was built after the shrine and deviates in its course in order to avoid it.

The northern third of the field produced very even responses with few visible archaeological features being detected. One small area of high responses (7) is visible. This appears to be rectangular with dimensions of 15m x 6m and could be interpreted as a small building. A weak linear anomaly (8) to the south-east of this could represent a path or track from the building.

The western side of the survey area is divided in two by a somewhat vague linear anomaly (9) which runs along the base of what appears to be a natural break of slope. This anomaly can best be interpreted as a ditch, probably dug to carry the run off from the slope. An area of short linear anomalies along with stronger single anomalies similar to the vicus alongside the road (2) can be seen to the north-east of ditch 9. It is worth noting that this area produced a higher level of background noise than its surroundings suggesting some artificial magnetic enhancement (see trace plot). A small circular anomaly (10) could be interpreted as a shrine or grave, similar to that detected at Cefn Caer. These anomalies are, however, very weak and poorly defined and while they superficially appear to represent further strip development alongside a road they may only be the result of plough scarring on a slight break of slope in the field.

The area to the west of ditch (9) comprises two areas of greatly differing responses. The northern part is magnetically very quiet. The southern part contains a mass of strong anomalies (11), some obviously linear, others less well defined. The anomalies are consistent with the remains of a large building or series of buildings, covering an area of 50m x at least 30m but no definite outlines can be traced. The linear anomalies are on a slightly different alignment to the fort itself and may therefore be either aligned with the road as it turns into the fort gate or possibly not contemporary with the fort. The area between the edge of the survey and the lane was unfortunately unsuitable for survey as it was surrounded by a wire fence and was very muddy. It was, however, possible to feel a large amount of stone beneath about 40cm of mud when the area was walked over suggesting the presence of substantial foundations. It should also be noted that a small building is shown just to the south of this area on the 'Old map of Caergai' (Fig 3). The base of the building still stands against the field bank and it is possible that some of the stone has come from this source although this does not account for the linear anomalies.

The geophysical results are, as in the case of Cefn Caer, open to alternative interpretation. The development alongside the road, particularly considering the existence of the shrine, is probably contemporary with the fort. There is however, evidence for Early Medieval activity in the area in the form of an early Christian stone and it is possible that some of the features detected on the survey could date from this time. Limited excavation could provide much information about both the features alongside the road and the state of preservation of the archaeology in this area.

#### 5. CONCLUSIONS

The first phase of the Roman fort environs project has produced a wealth of new information about the two sites that have been surveyed. The results from the previously largely unexplored fort at Cefn

Caer, Pennal are particularly informative showing details of the fort and its defences set in a wider landscape containing both military and civilian features. Ribbon development in the form of a probable *vicus* alongside two of the roads from the fort extends to over 100m beyond the scheduled area. A variety of more specifically military features are clustered around the fort and include a bathhouse a circular tomb and a possible mansio and parade ground. The results from Caer Gai confirmed the line of a road leading from the fort and revealed the presence of what appears to be an extensive *vicus* along with a shrine and an extensive complex of buildings of unknown date and function.

The extramural remains extend far beyond the scheduled areas at both sites and can be seen to be vulnerable to damage or destruction. The agricultural regime at Cefn Caer is probably not causing any major damage to the sites at present but the relatively slight remains that make up the *vicus* are very vulnerable to deep ploughing. The clarity of the results in the fort and annexe when considered alongside the antiquarian evidence suggest a very good level of subsurface preservation. The extramural remains at Caer Gai are less well defined and give the impression of having been partially ploughed out. The buildings at the west of the survey area are almost certainly being affected by livestock trampling, down to a depth of at least 0.4m, in a very wet part of the field.

One of the major functions of this phase of the project was to assess the usefulness of gradiometer survey as a means of assessing the environs of Roman forts. The results from both sites have demonstrated that the technique, being non-invasive and relatively swift is ideally suited to the task. Recommendations for prioritised further survey are set out below (for details see part 3.3, above).

- 1. The environs of the now destroyed fort of Pen Llystyn.
- 2. Bryn-y-gefeiliau fort and annexe.
- 3 .Canovium (Caerhun)
- 4. Tomen-y-mur

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Fig 1. N. W. Wales in the Roman period showing known sites and roads



Fig. 2 Caer Gai, topographical survey and known archaeology



Fig. 3 The 'Old Map' of Caer Gai (Thomas 1885)



Fig. 4 Cefn Caer (Nash Williams 1969)























