
**Appendix 1 Text and translation of a passage from the
Corpus Agrimensorum.**

Faustus and Valerius, (Blume, Lachmann and Rudorff 1848: 307-308). Author's translation from the French of Peyras (1983: 218, note 34).

*Per Gallias et per Africam.
Dum per Africam assigneramus,
circa Chartaginem in aliquibus
locis terminos rariores constitu-
imus, ut inter se habeant pedes
IICCCC. In limitibus vero, ubi
rariores terminos constituimus,
monticellos plantavimus de
terra, quos botontinos appellav-
imus. Et intra ipsis carbones et
cinus et testa tusa cooperuimus.*

Across the Gauls and across Africa. When we assigned (land) across Africa, around Carthage, in certain places we set up boundary markers (*termini*) further apart, at 2,400 feet. But on the *limites* themselves, where we had set up these widely spaced *termini*, we planted small mounds of earth, which we called *botontini*. And the inside of these we covered entirely with charcoal, cinders and crushed potsherds.

*Trifinium quam maxime quando
constituimus cum signis, id est
cinus aut carbines et calce ibi-
dem construximus, et super
duximus, et super toxam monti-
cellum constituimus,*

The meeting point of three (property) boundaries, we set up as quickly as possible with signs, i.e. we put together cinders, charcoal and lime in the same place, and straightaway we set up a small mound above the point.

in Chartagine et in provincia s(ua), quam maxime olivastellum et cotoneum et sabucum in finem constituimus, et circa sabucum monticellos constituimus, sicut superius scripsimus, cum signis et sigillis quam maxime.

Fines ut sint breves in provinciis et per montibus saxuosis limites de lapides constituimus. Et in aliquibus locis murum de lapides fecimus constringere, ex calce et harena fundamenta quam maxime.

In alios fines nihil posuimus, sed ex opera fossas fecimus mitti in alto. Alios fines, quos sursum monte diteximus, in XII pedes latitiam constituimus propter ripae ruinam.

At Carthage and in its province we set up a small oleaster, a quince and an elder on as many boundaries as possible, and around the elder we set up small mounds, as described above, with as many signs and marks as possible.

So that boundaries would be established quickly in the provinces and in stony hills, we set up *limites* with stones, and in some places we caused stone walls to be piled up, with foundations of as much lime and sand as possible

On other boundaries we put nothing, but we caused deep ditches to be dug. To other boundaries, which we traced over a hill, we gave a width of 12 feet, because of the destruction of the banks (?erosion).

Appendix 2 Random coincidence of topographic features with a hypothetical cadastral grid, a case study in Northern Ireland.

Topographic features are frequently produced as evidence for the existence of a centuriation. These are extracted from maps because they appear to conform to a grid of around 710m. For a reasonably sceptical investigator the immediate question is how far these coincidences arise by pure chance.

This question can be answered, at least partially, by taking a map of an area where the Romans could not have modified the landscape, and treating it as if it might reveal traces of a Roman cadastre.

For this exercise it was decided to use a 1:50,000 topographic map of Northern Ireland. This contains topographic features at a level of detail comparable to that shown on 1:50,000 maps of England, and they are depicted in a similar fashion. Northern Ireland is also an region where it is possible to find areas whose relief is comparable to that of England, and where we have no reason to anticipate Roman involvement in agrarian organisation. Thus it was felt that the traces extracted from such an area could be used to calibrate the English findings.

Ordnance Survey of Northern Ireland sheet 20 was selected. This covers an area immediately south and west of Belfast, including a tract on the south east shore of Lough Neagh, with area approximately 30 by 15km having altitudes of 20-100m, comparable to the relief values found in Lindsey (6.3).

A hypothesis was then developed, following the principles used above (6.2). According to these we should look for (i) possible trigonometrical relationships of a theoretical grid with Roman roads, and (ii) the general orientation of features in the landscape which appears most "natural".

In the area around and to the south of Lurgan there are several sub-parallel minor streams draining north north westwards towards the lough. Together with the pattern of minor roads this gives a distinctly rectilinear appearance to the map features. This area is crossed at about 45° by the straight Lurgan-Gilford road.

This road can be adopted as "pseudo Roman". A transparent overlay grid of scale 710m squares may then placed on the road so that opposite corners of squares fall on it (i. e. it is at 45° to the grid). We can then slide the grid up and down until we get a good fit with elements of the rectilinear stream and road system, thus giving ourselves a good chance of "detecting" a centuriation in this area.

Having done this we obtain the following parameters for the hypothetical cadastre:

'Point of origin", $x = 0812$, $y = 5529$

Module = 710m

Angle = -28.546°

From these parameters the coordinate points may be calculated, and topographic features, over the whole map sheet, traced as if they might be potential *limites*.

The result of this exercise (*figure A2.1*) shows a moderately plausible set of cadastral traces in the Lurgan area, where an effort had been made to obtain a good fit. The remainder of the traces are thus more typical of what one might expect to observe at random.

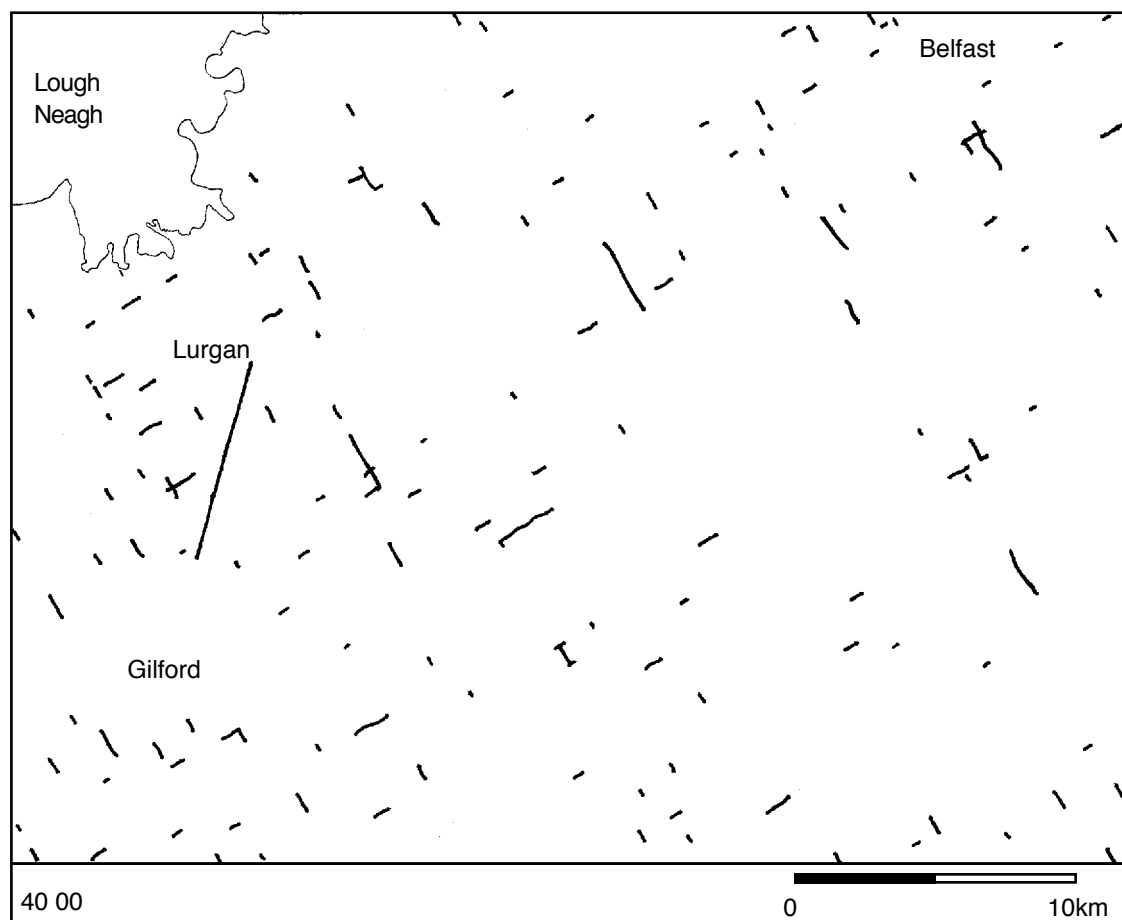


Figure A3.1 Traces of a pseudo-centuriation in Northern Ireland

Naturally, a few reservations should be expressed about this result. Firstly, the area seems to have less footpaths than would be found in some parts of England. Thus there may be less scope for finding potential traces.

Secondly, there may be some doubt about the enthusiasm with which the author hunted for traces, given that he did not believe that a Roman cadastre could exist in this area. Clearly a more objective result would be achieved by employing someone to trace features in ignorance of the area being processed, or by a technique such as optical filtering. These options were not available; so the author, being aware of this problem, was careful to include some traces which were very dubious when compared to those he had traced in other cadastres with greater potential reality.

Appendix 3 Glossary.

actus: unit of linear land measurement, 120 Roman feet (*pedes monetales*). This was equivalent to 35.1-35.6 metres. The value in common use during the empire was around 35.5m, giving a value of 710m for the side of a century of 20 *actus*.

cadastre: a land information system and, in the case of ancient landscapes, its physical remains. In Roman cadastres these are often seen as minor roads, ditches and other modern boundaries conforming to the *limites*. The establishment of a formal Roman cadastre was preceded by surveying (*limitatio*) and the establishment of survey markers (*terminatio*). Not all such surveys were centuriations. It is thus technically incorrect to use that word to signify all types of Roman land planning and allotment. For this reason, and because it embraces all aspects of the system, the term "cadastre" is to be preferred.

centuriation: a form of surveying (*limitatio*) in which the *limites* divide the surveyed land into squares, or, occasionally, rectangles. Centuriations are known of various sizes from 10x10 to 20x20 *actus*. During the late republic and empire the centuriation of 20x20 *actus* appears to have been normal.

century: a square of a centuriation.

CK: *citra kardinem*, on this side of the *kardo maximus* (KM) (*figure A3.1*).

colonia (-ae): (in the republic and early Empire) a legally established settlement of veterans, who received an allotment of land on discharge from the Roman army. The allotments were not necessarily contiguous and might be separated by land not allocated to veterans. The settlement might be totally new, but this was not necessarily so.

DD: *dextra decumani*, to the right of the *decumanus maximus* (DM) (*figure A3.1*).

decumanus (-i): a *limes* parallel to the *decumanus maximus*

decumanus maximus: one of the two orthogonal principal axes of a centuriation (*figure A3.1*). In the case of the Orange B cadastre the stone tablets (*tabulae*) shows it running east-west (depicted vertically). By convention, the *decumanus maximus* is assumed to be the axis more nearly oriented in this direction, but counter-examples exist in reality.

forma -(ae): the base map of a Roman cadastre; also (possibly) the base map of a survey which was not followed by allotment and recording of land holdings.

iugerum, (-a): a measure of land. 1x2 *actus*.

kardo (-ines): a *limes* parallel to the *kardo maximus*

kardo maximus: one of the two orthogonal principal axes of a centuriation, at right angles to the *decumanus maximus* (*figure A3.1*).

limes (-ites): lines of division (axes) of a Roman cadastre: an area was divided with *limites* and assigned "within the *limites*", i.e. within the framework of these cadastral lines, using them to record the operation both on the ground and on the *forma*. These lines often, but not invariably, were followed by ways whose breadth and surface treatment varied according their status and function.

limites maritimi: *limites* which "look towards the sea".

limes quintarius: normally a *limes* at a multiple of 5 centuries from one of the major axes of a centuriation. It is also possible that *quintarii* could have been spaced at 2 or 4 centuries.

Local Parcelling: a local reorganisation of a cadastre. Such reorganisations are frequently based upon Roman main roads or

other straight linear features. Local parcellings are not necessarily Roman.

quintarius (-i): see *limes quintarius*.

SD: *sinistra decumani*, to the left of the *decumanus maximus* (DM) (figure A3.1)

subsecivum (-a): land initially unallocated. Such areas would occur in different locations such as (i) on the margin of natural obstacles, (ii) at the border of the cadastre or in the gaps between cadastres at different orientations, or (iii) within the centuries in land divided but not assigned, as shown on the Orange tablets.

terminus (-i): Roman survey marker, or (loosely) its supposed position.

territorium (-a): the area of land controlled by a Roman town, whether registered in a formal cadastre or not.

VK: *ultra kardinem*, beyond the *kardo maximus* (KM) (figure A3.1).

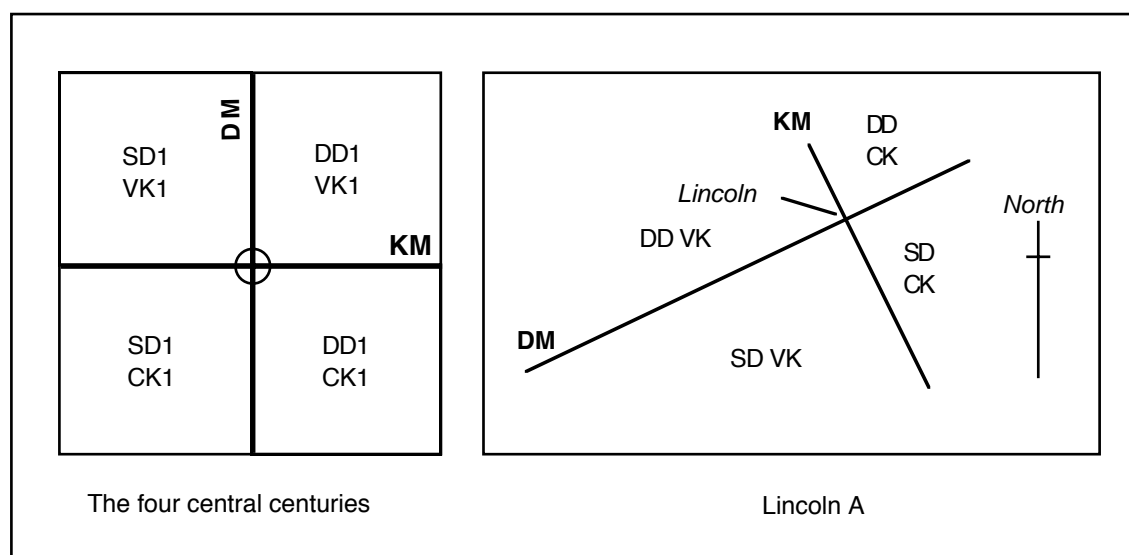


Figure A3.1 Centuriation coordinate system and theoretical configuration of Lincoln 'A'.