Fig. 1: The Anglo-Scottish border and the Marches
(inset: The Debatable Land)

Key to the trysting places on the border (p. 24):
1. Lochmaben Stone. 2. Toller Crik. 3. Tourney Holm. 4. Day Holm. 5. Scotch Knowe / Lamisik Ford. 6. Bloody Bush. 7. Bells Kirk. 8. Kielder Stone. 9. Redeswire (Carter Bar). 10. Kemylpethe / Chew Green. 11. Hexpeth Gate. 12. Hanging Stone. 13. Staweford. 14. Reddenburn / Hadden Stank. 15. Coldstream. 16. West Ford.

Map labels:
'Bound dike' or 'road'
BERWICK
North Sea
Norham
Tweed
Carham
Lindisfarne
Wark
'March dike'
Flodden
English East March
Bamburgh
White Law
Yetholm Common
Hills
Windgate Fell
Alnwick
Dere Street (Roman road)
Coquet
Rede
Otterburn
English Middle March
Tyne
Bellingham
N
WALL
South Tyne
Hexham

Inset map:
Langholm
Tinnis Hill
Esk
Broomholm
Barnglieshead
Hollows
Harelaw
Liddel
Canonbie
Rowanburn
Tower of Sark
Liddel Moat
Scots' Dike
Netherby
Sark
Solway Moss
Longtown
Gretna
Arthuret
Lyne
Lochmaben Stone
0   2 miles

Legend:
.... March boundary
Fort
Trysting place (numbered)
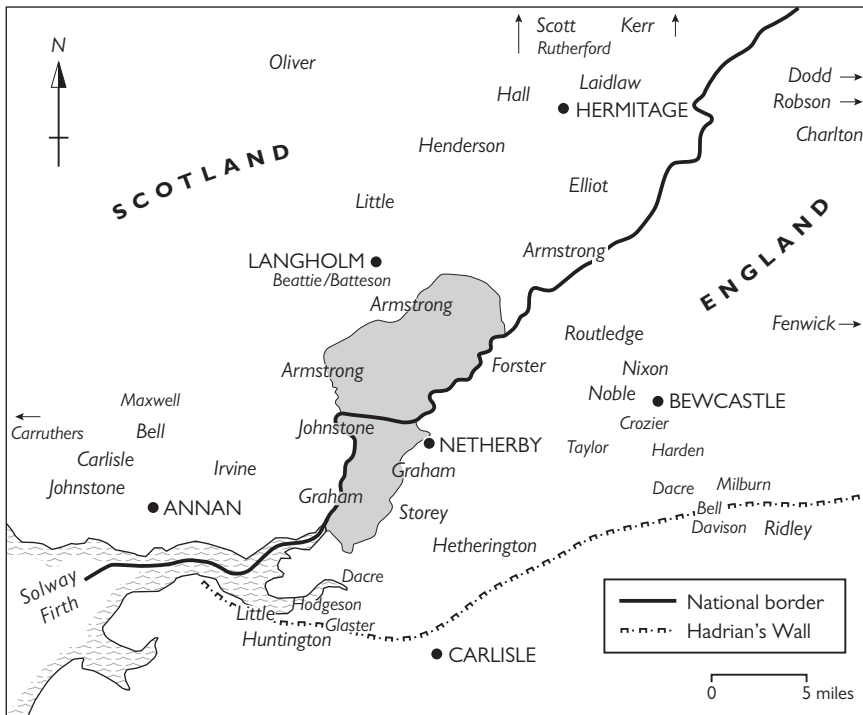)(Border pass or 'ingate'

0   10 miles

Fig. 2: Surnames of the West Marches and the Debatable Land

The distribution of clans or 'surnames' in the 1580s and 90s. From reports of the English and Scottish wardens.
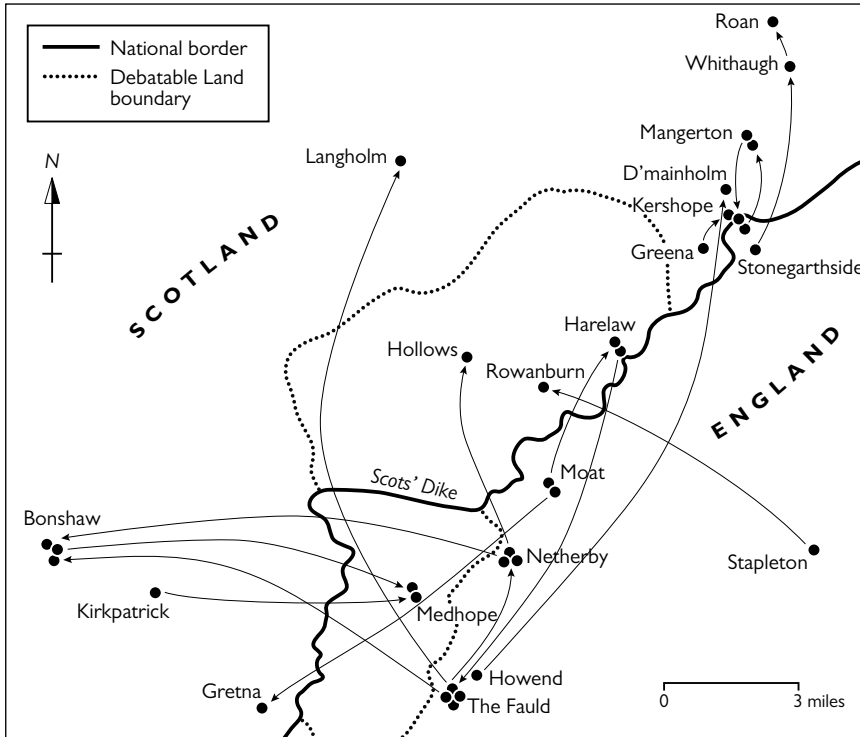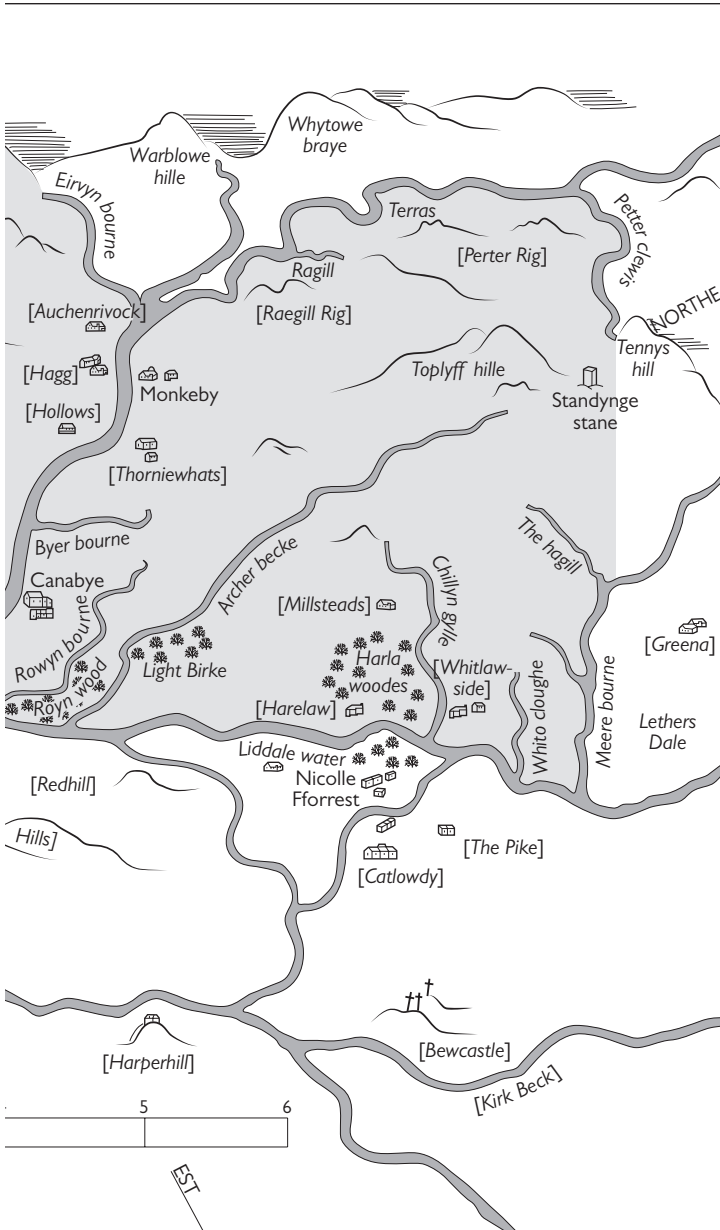
Fig. 3: Marriages in and around the Debatable Land and Liddesdale

Each arrow represents a bride's journey to her new home. The map shows all the 'alliances' – not just those that bridged the border – for which both places can be identified. From Thomas Musgrave's report to Lord Burghley (William Cecil) on 'the riders and ill doers both of England and Scotland', late 1583 (*Calendar of Border Papers*, I, 120–27).

Correy

[Lochmaben]

WEST

Scotlande

[Water of Milk]

[Burnswark Hill]

[Allfornought Hill]

Sarke water

Pingle knolle

Cocclay rigge

Castell mylke

Pyngle bourne

the rigge hedde

Notebery hill

[Mein Water]

Hawe bourne

[Kirtle Water]

Kirkige

[Oakwoodhill]

Sandy Armestr.

Torbrack hille

[Merkland Cross]

Catgylle

the theefe slack

[Chapelknowe]

†

Kirkepatrik

[Cubbyhill]

Petmen hille

Tardwoth

Red Kirke

Mathewe Plompe

Prior John

Greateney

Glonyer

Wodes bourne

Lomaban Stone

Dymis-dayle

Eske

Sarke water

Solome mosse

[Baten-bush]

Tom Greme

the Mote of Liddall

Edyn

Toller crik

Rosetrees mosse

Meedop buske

Fergus Greme

Riche Greme

Lange rack

Blackbank

[Peth]

[Easton

Rocley

a mosse

Eske

[Longtown]

Englande

[Burnfoot]

Arthurt knolle

[Slealands]

Lyvyn

[Brackenhill]

[Kirklinton]

1   2   3   4

SOWTHE

Fig. 4: A key to Henry Bullock's 'platt' of the Debatable Land, 1552

See plate 14. The names in square brackets are those of features depicted but not named on the map. The lines tracing the proposed divisions of the Debatable Land are reproduced separately (fig. 5).

On the map's orientation, see p. 137. The scale is impressively consistent within the shaded area (one of Bullock's miles is equivalent to about one-and-a-half modern miles). Beyond the Debatable Land, the scale varies and distances are slightly telescoped. The accuracy of the plotting makes it possible to identify most of the unnamed places, from Lochmaben (top left) to Bewcastle (bottom right). The lines indicating cardinal points of the compass are less accurate than the map itself, which correctly shows Liddel Moat as the centre of lines drawn between Tinnis Hill and Arthuret Knoll and between Tower of Sark and Harper Hill. These triangulation points are all visible from the summit of Tinnis Hill.

Map labels:

Whytowe braye
Warblowe hille
Eirvyn bourne
Terras
[Perter Rig]
Petter clews
NORTHE
Ragill
[Auchenrivock]
[Raegill Rig]
Tennys hill
[Hagg]
Monkeby
Toplyff hille
[Hollows]
Standynge stane
[Thorniewhats]
Byer bourne
Archer becke
The hagill
Canabye
Chillyn gylle
Rowyn bourne
[Millsteads]
[Greena]
Royn wood
Light Birke
Harla woodes
[Whitlaw-side]
Whito cloughe
Meere bourne
Lethers Dale
[Harelaw]
Liddale water
[Redhill]
Nicolle Fforrest
Hills]
[The Pike]
[Catlowdy]
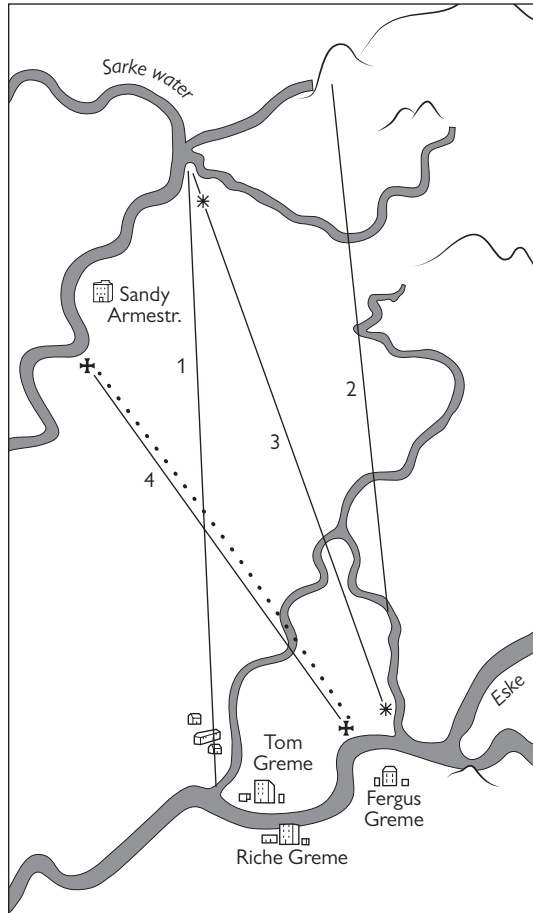[Bewcastle]
[Harperhill]
[Kirk Beck]
5   6
EST

Fig. 5: The partition of the Debatable Land on Bullock's 'platt'

The four straight lines on Bullock's map show the Scottish proposal (1), the English proposal (2), the French ambassador's compromise (3) and 'the last and fynal Lyne of the particion concluded xxiiii Septembris 1552' (4). The dotted line represents the Scots' Dike or March Bank which marked the new Anglo-Scottish border (p. 137).
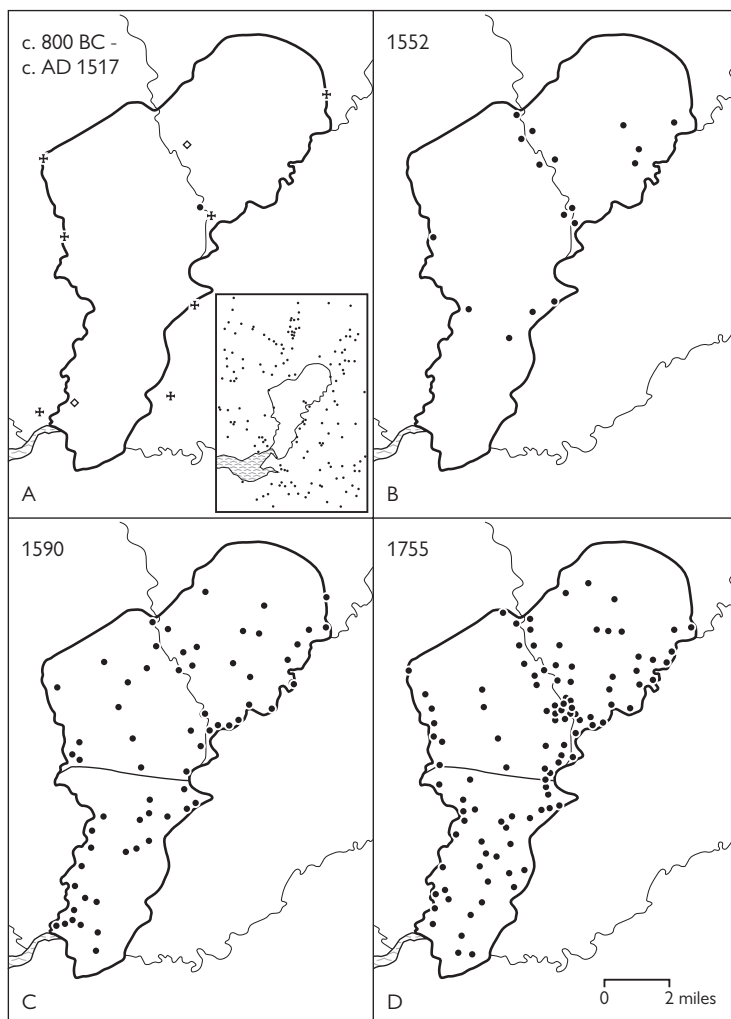
Fig. 6: The colonization of the Debatable Land

A. From the end of the Bronze Age to the first reiver settlements in the 1510s, the only permanent human habitation in the Debatable Land was in the religious enclave of Canonbie Holm (see pp. 87 and 277). The rectangles are the two temporary Roman camps; the crosses are the medieval perimeter chapels. Inset: settlements and traces of settlement in the surrounding area in the same period. (See p. 109.)

B. Farmsteads and pele towers in the Debatable Land on Henry Bullock's 'platt', immediately before the partition of 1552.

C. On the 'Platt of the opposite Border of Scotland to ye West Marches of England' produced for Lord Burghley (William Cecil) in December 1590.

D. On William Roy's Military Survey of Scotland (1752–5).

63

62

61

60

59

58

57

56

55

54

53

52

51

Oceanus Hyperboreus

Malaeus

Ebuda Ebuda Eggarikenna Epidium

Monarina

Novantarum Pen. & Prom.

Vennicnium Prom.

Robogdium Prom.

Rerigonium Sinus

Epidium Prom.

Boreium Prom.

Magnata

Udia

Argita

Logia

Rerigonium

Iena Aest.

Lucopibia

Abravannus

Vindogara Sinus

Vindogara

Alauna

Regia

Vinderis

Isamnium

Oceanus

Oceanus

Hibernicus

Deva

Carbantorigum

Novius

Corda

Coria

Clota Aest.

Ravius

Reba

Libnius

Occidentalis

HIBERNIA

Buvinda

Adrus (desertus)

Uxellum

Trimontium

Curia

Colanica

Regia

Ausoba

Laberus

Oboca

Eblana

Limnus (desertus)

Manapia

Bremenium

Alauna

Alauna

Ituna Aest.

Vedra

Dunum

Macolicum

Modonus

Senus

Dur

Dabrona

Iernis

Birgus

Moricambe Aest.

Epiacum

Vinnovium

Caturactonium

Dunum Sinus

Iernus

Ieron Prom.

Mona

Portus Setantiorum

Rigodunum

Calagum

Isurium

Olicana

Notium Prom.

Belisama Aest.

Seteia Aest.

Camulodunum

Eboracum (Legio VI Victrix)

Gabrantuicorum Sinus

Ganganorum Prom.

Deva (Legio XX Victrix)

Lindum

Petuaria

Abu

Ocelus Prom.

Mediolanum

Toisobis

Brannogenium

ALBION

Oceanus

Stuccia

Viroconium

Salinae

Metaris Aest.

Ratae

Urolanium

Gariennus

Venta

Vergivius

Luentinum

Bullaeum

Tuerobis

Ratostabius

Sidumanis

Prom.

Camulodunum

Maridunum

Tobius

Corinnium

Tamesa Aest.

Tanatis

Octapotarum Prom.

Sabrina Aest.

Caleva/ Calcua

Londinium

Rutupiae

Cantium Prom.

Iscalis

Uxella Aest.

Aquae Calidae

Darvernum

Itium Prom.

Novus Portus

Gesoriacum

Herculis Prom.

Uxella

Tamare

Isca

Alaunus

Noiomagus

Venta

Trisantonis

Tarvanna

Antivestaeum/ Bolerium Prom.

Tamarus

Isca (Legio II Augusta)

Isca

Dunium

Magnus Portus

Samarobriva

Frudis

Cenion

Voliba

Vectis

Sequana

Caesaromagus

Damnonium/ Ocrium Prom.

Oceanus Britannicus

Noiomagus

Iuliobona

Nemetacum

Olina

Fig. 7: Ptolemy's map of Albion and Hibernia (Britain and Ireland), with parts of Gaul and Germany

The towns, headlands, bays, estuaries, river mouths and islands are plotted on the graticules specified by Ptolemy (11 x 20 for the British Isles, 2 x 3 for Gaul, 3 x 5 for Germany): see p. 189. The graticules determined the relative positions of places and features, not the scale. I have sized the three maps to produce a reasonable cross-Channel fit.

The coordinates are those of the Codex Vaticanus Graecus 191. This manuscript (referred to as 'X') can now be treated as the most authoritative. It was produced in about 1296 and evidently escaped the tampering known as 'the Byzantine revision' which corrupted all the other descendants of the lost original. The scribes of 'X' gave up copying the tedious numerical coordinates, but fortunately only after reaching Book 5. (Britain and Ireland are at the start of Book 1.)
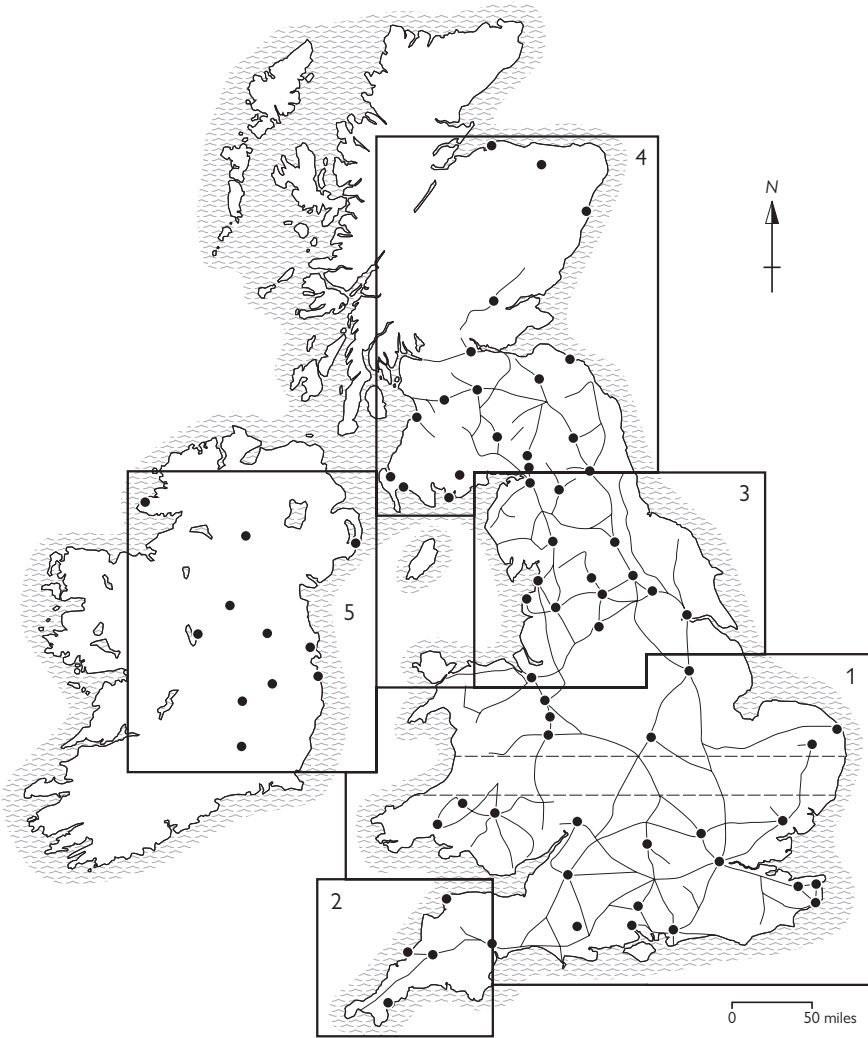
Figs 8 and 9: Ptolemy's atlas of the British Isles

The lines on fig. 8 represent Roman roads.

Ptolemy's map of the British Isles was assembled from several different maps, each of which observed its own conventions (p. 193). The coastal data was faulty, but, plotted on the correct graticule, the coordinates of *poleis* (towns) – including those of the three ports, Magnus, Novus and Setantiorum – are astonishingly accurate. The area between dotted lines is unrepresented in the data, perhaps because that section of the map of southern Britannia never reached the Library of Alexandria.

The incorrect latitude and longitude degrees are, in effect, arbitrary and

imposed by Ptolemy on the original maps. Any system showing vertical and horizontal positions would have served (e.g. A1, B2, etc.) or, since the triangulated positions on the 4 by 3 graticule turn out to have been calculated by whole-number ratios based on Londinium, 4:1, 5:3, etc., with a cardinal point and an indication of distance.

The approximate foundation dates of Roman forts and towns suggest that each map corresponds to a stage in the Roman conquest of Britain. Ireland was never invaded, but Roman finds indicate trade and, at Iernis (Stoneyford), civilian settlement: 1) AD 43–50 (lower section), AD 50s (upper section). 2) AD 50–65. 3) AD 70–78. 4) AD 78–81 (lower section), c. AD 83 (upper section). 5) c. AD 90–110.

N

Winterton
Ness
Salinae
Venta
Caistor

Camulodunum
Colchester

Rutupiae

Darvernum
Richborough
Canterbury
Dover

Lincoln
Lindum

Mediolanum
Whitchurch
Bury Walls
Wroxeter

Brannogenium

Viroconium

St Albans
Urolanium

Leicester
Ratae

Londinium
LONDON

Novus
Portus

Noeomagus

Magnus
Portus
Chichester

Corinium

Caleva/
Calcua

Gloucester
Bullaeum
Brecon

Cirencester

Dorchester

Silchester

Venta
Winchester
Southampton

Bath
Aquae
Calidae

Dunium
Hod Hill

Isca

Legio II
Augusta

Pumsaint

Luentinum

Maridunum
Carmarthen

Isca
EXETER
Topsham

Iscalis
Ilfracombe

Uxella
Tintagel
Tamare
Launceston

Falmouth
Voliba

0   20 miles

Fig. 10: Ptolemy's map of Southern and South-Western England

The squares are towns on Ptolemy's map; the circles are the places in their actual locations.

On the functioning of this unique map, see p. 194. Distances are approximate but bearings from Londinium are remarkably precise, with an average deviation of only 1.8° for the south-west and 1.7° for the rest of the map. In fact, since the survey was based, not on degrees, but on right-angled triangles with whole-number sides, most of the deviations are consistent with the inevitable margin of error. The blatant exception is Rutupiae (Richborough), which deviates from the true bearing by 13.5°. Its coordinates may belong to the faulty coastal data (p. 192) or, since this was the landing site of the invasion of AD 43, to military measurements using water clocks.

The coordinates of Corinnium (or Corinium) and Calcua (or Caleva) clearly define the positions of Gloucester and Dorchester-on-Thames. Bearings from these two places to the other towns are almost as accurate as they are from Londinium. The only evidence for the Roman name of Cirencester (probably a later, Anglo-Saxon name) is Ptolemy's misinterpreted map and the muddled Ravenna Cosmography of the seventh century (Coates). Cirencester itself became an important Roman town only about twenty years after the production of the map.

The map of the far south-west uses a different graticule and takes Isca (Exeter) rather than Londinium as its focal point.

A section or panel of the original map appears to be missing. Logically, it would have included several other major sites at road junctions: Kenchester, Towcester, Water Newton, etc. The original may have been engraved on metal plates or on stone tablets, like the Roman cadastral map of Orange (second century AD). To fill the gap, Ptolemy or Marinus of Tyre shifted the upper section of the map, which reflects a slightly later stage of the Roman conquest, to the south and west. The seven places in this section are mutually coherent and share the same directional accuracy relative to Londinium.
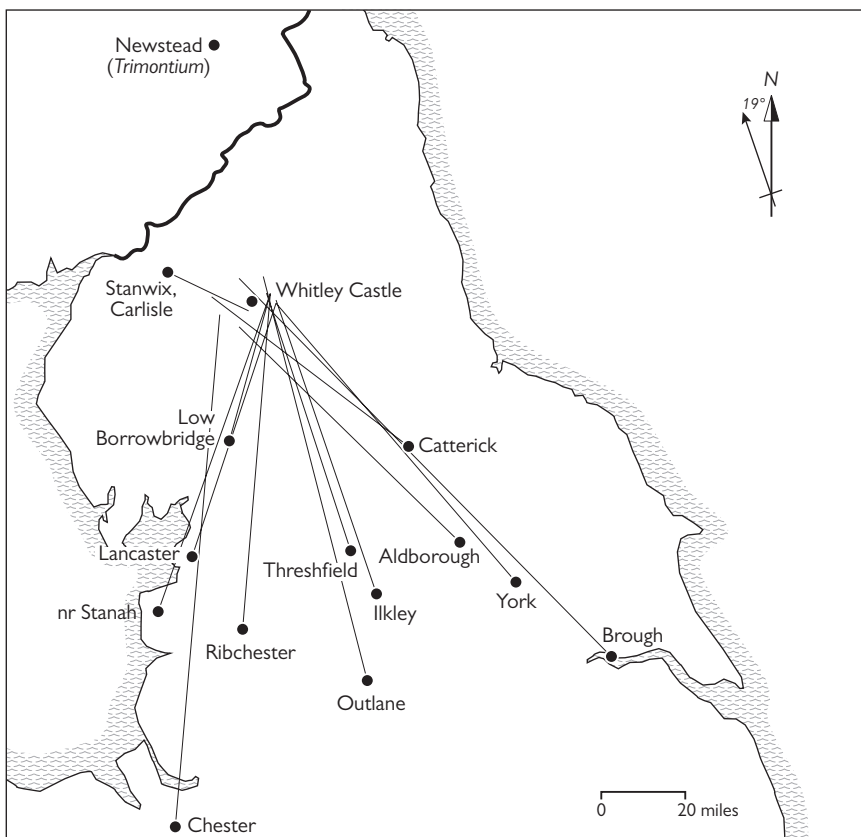
Fig. 11: Ptolemy's map of Northern England

On the graticule and orientation of the map, see pp. 194 and 293. In contrast to the previous map (fig. 10), distances are impressively exact. Bearings are slightly less accurate, with an average deviation of 2.5°, excluding the obviously misplaced Isurium (34.5°) and Caturactonium (19.4°). Caturactonium is one of the places for which Ptolemy had 'modern' data expressed in length of day, which would explain the inaccuracy (see p. 195). He may have known that Isurium stood on Dere Street between Caturactonium and Eboracum and so inserted it in what seemed the logical position. This exception proves the usual refinement of the mapping since a correct positioning of Caturactonium would have required only a small adjustment: 58° 10', 19° 50' instead of 58° 00', 20° 00'.
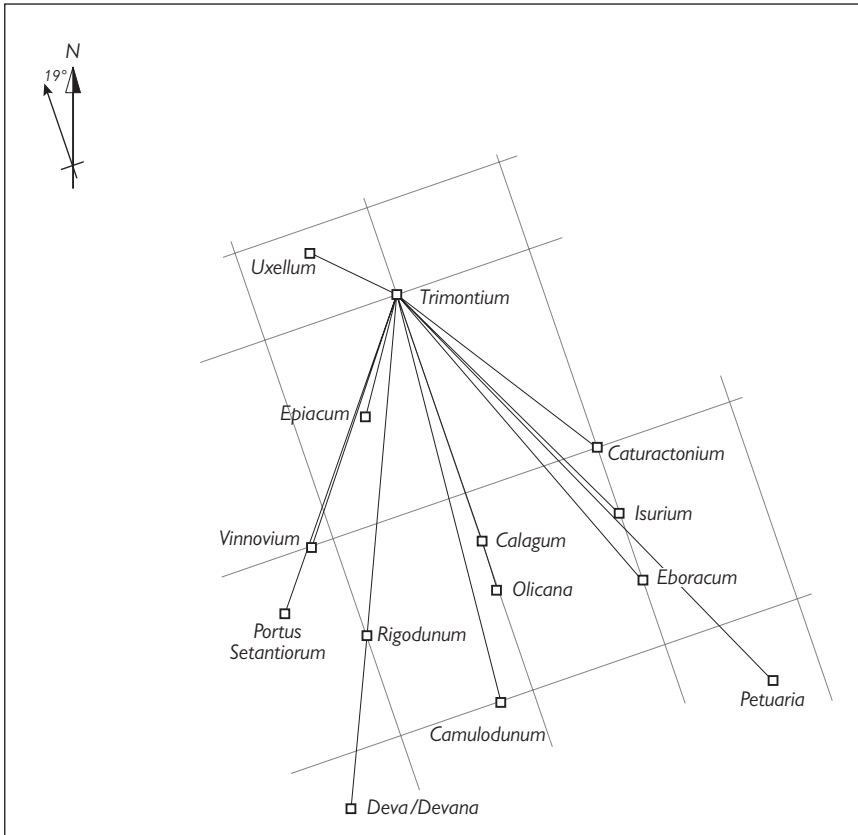
The convergent lines show the process of identifying unknown places:

1. On Ptolemy's map (right), lines were drawn from each town to the place labelled 'Trimontium'. 2. These lines were transferred – preserving the exact trajectories and relative distances – to a modern, rhumb-line map (left) on which the known places are correctly positioned. 3. The convergence of lines indicates an area in which the only significant Roman site is the fort of Whitley Castle near Alston (currently assumed to be Epiacum). Conclusion: this 'Trimontium', listed among the towns of the Selgovae, cannot possibly have been the fort of Newstead, which lies far to the north and well inside the territory of a different tribe.
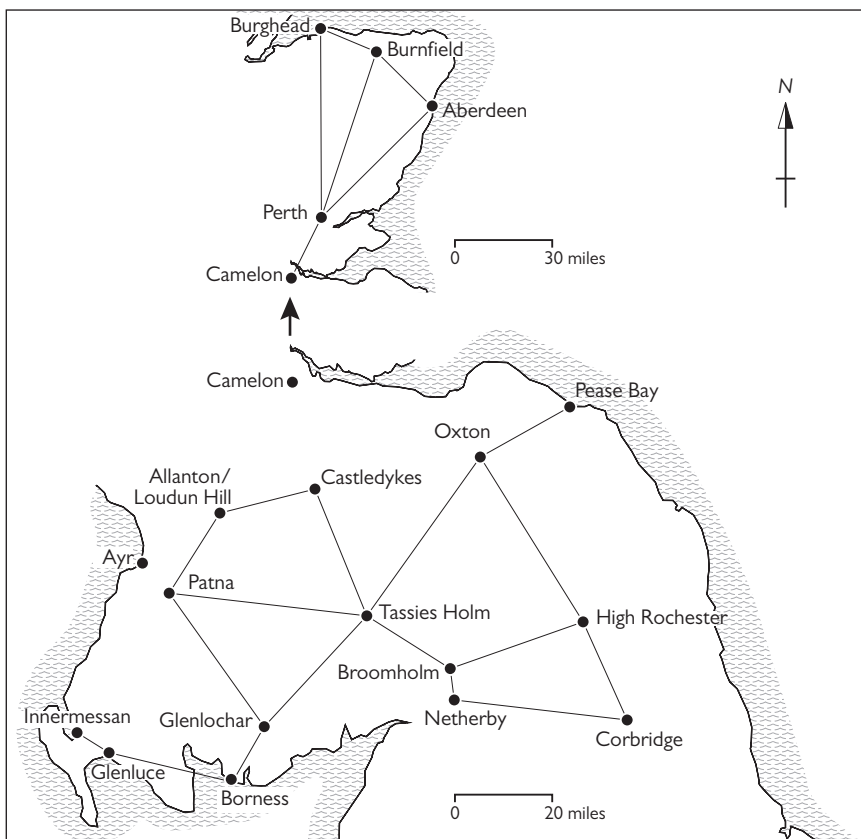
Fig. 12: Ptolemy's map of Caledonia

The lines connecting towns are intended only to facilitate comparison.

Both sections of Ptolemy's map (right) use a 4 by 1 graticule. On a modern scale map, the upper section would be magnified by one-third. It shows forts established only after Agricola's advance into northern Caledonia in c. AD 83 and was probably acquired separately.
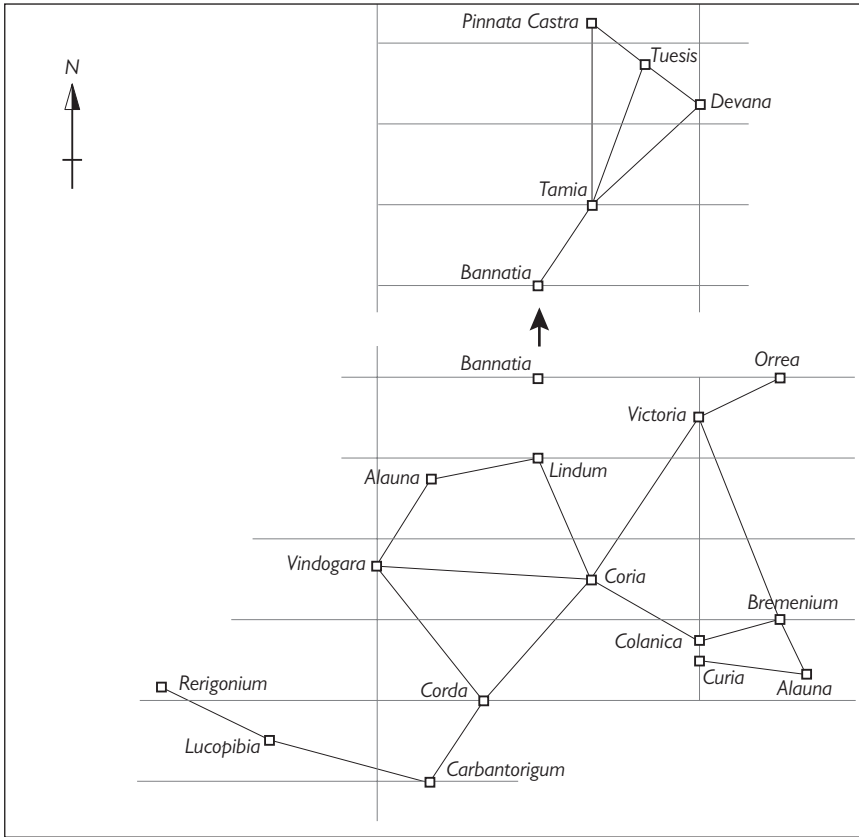
The distension of the map to the south-west suggests that the coordinates for Rerigonium belonged to the less accurate coastal data. Vindogara would be a site near Patna on the supposed Roman road from Ayr if the map is accurate; the bay called Vindogara would suggest Ayr itself.
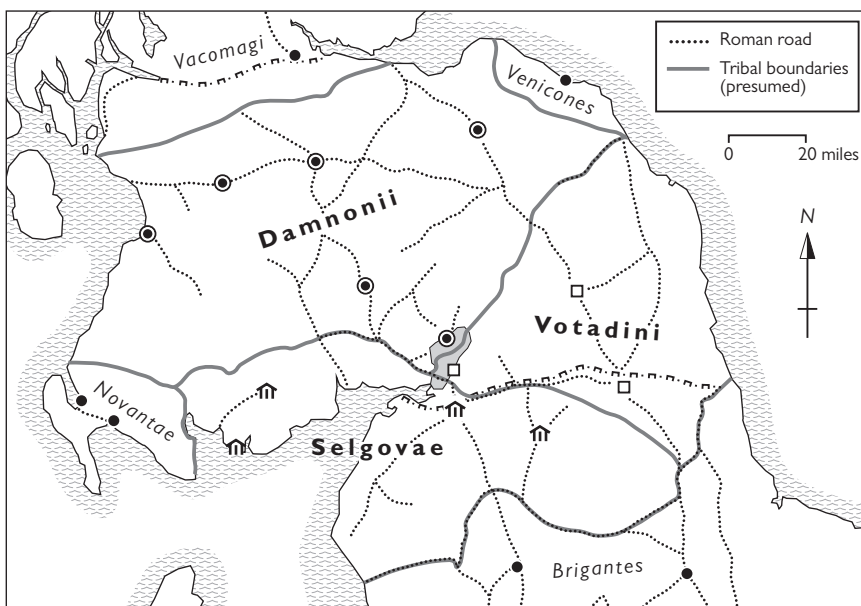
Fig. 13: An Iron Age buffer zone in the region of the
Debatable Land

Three tribal territories met in the area of the Debatable Land. A sixteen-mile
stretch of the north-south border route was controlled by three different tribes:
Damnonii (Colanica/Broomholm), Votadini (Curia/Netherby) and Selgovae
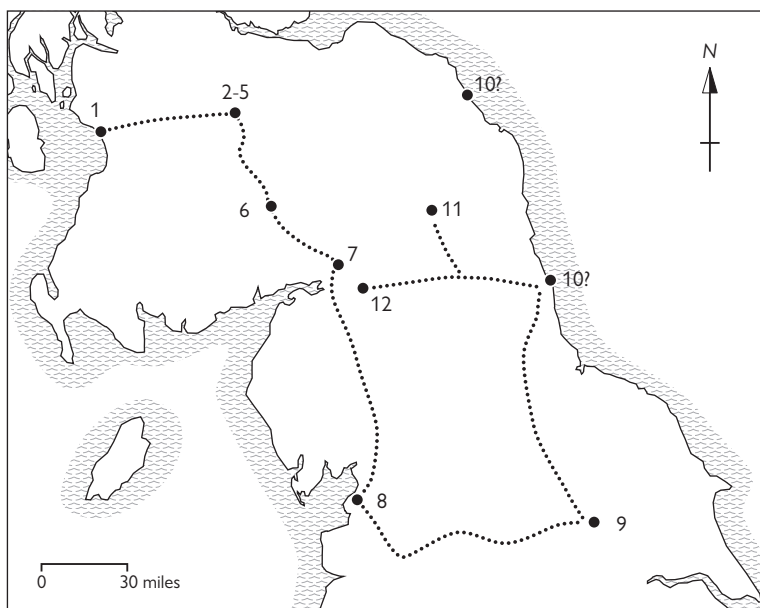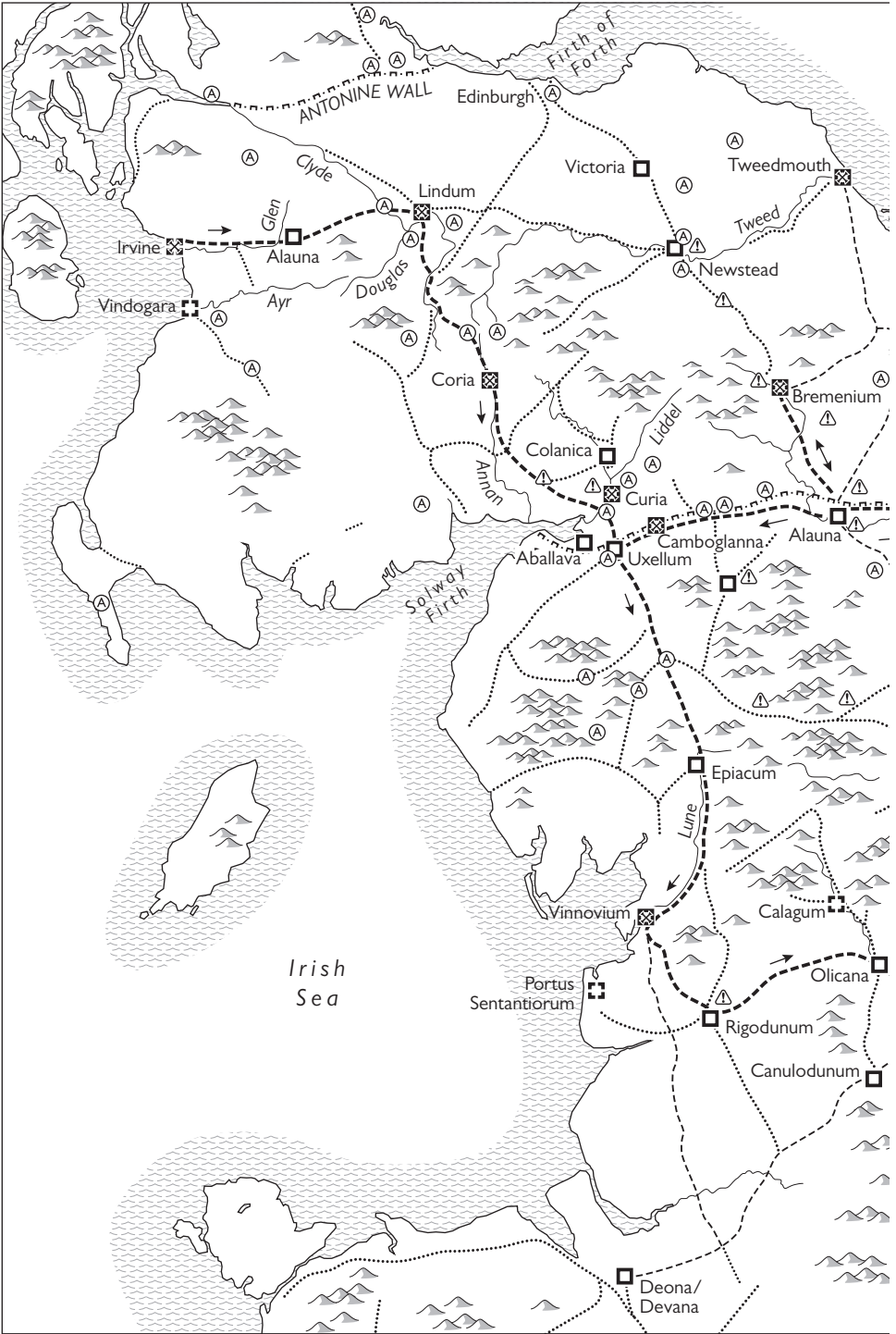(Uxellum/Stanwix, Carlisle). (See p. 201.)

Fig. 14: The Great Caledonian Invasion (1)

The sequence of battles fought by 'British kings' and 'Arthur' according to the *Historia Brittonum*, identified with the aid of Ptolemy's restored maps.

More detailed identifications are given on pp. 211–12, 217–23 and 245–7.
1. Mouth of the Glein: Irvine. 2, 3, 4, 5. On the river Dubglas in the Linnuis region: the river Douglas near Castledykes. 6. On the river Bassas: Tassies Height? 7. Celidon Wood: Liddesdale. 8. Guinnion: Lancaster. 9. City of the Legion: York. 10. The shore of the river called Tribruit: Arbeia / South Shields, or Tweedmouth. 11. Bregion / Bregomion: Bremenium (High Rochester). 12. Camlann: Cambo-glanna (Castlesteads).

Legend:
- – · – · – Invasion route (probable)
- – – – – – Invasion route (possible)
- ·········· Other Roman roads
- ☐ Roman fort
- ⌗ Roman fort (presumed)
- × Battle site
- ⚠ Signs of destruction, abandonment or rebuilding, late 2nd c.
- Ⓐ 'Arthur' place names

N

North Sea

0 ⊢————⊣ 20 miles

⚠ ⚠ ⊠ Arbeia

Ⓐ ☐ Caturactonium

Isurium ☐

⊠ Eboracum

Petuaria ☐

Humber
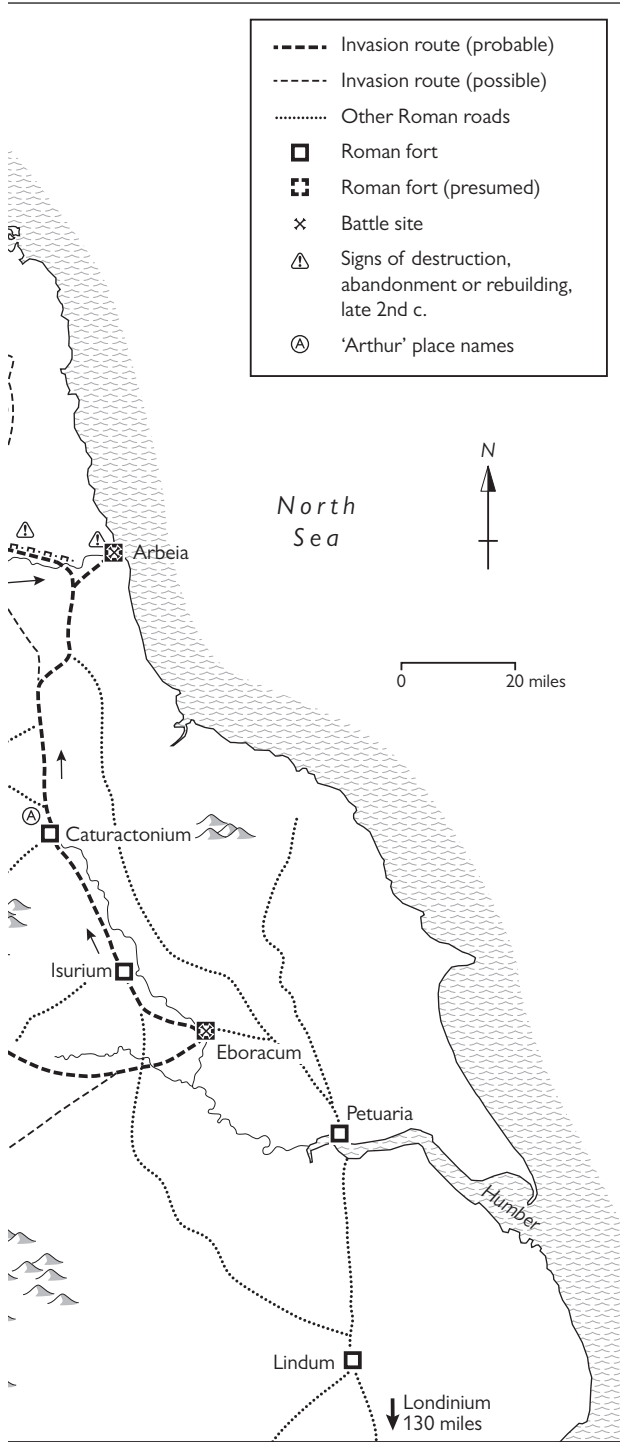
Lindum ☐

↓ Londinium 130 miles

Fig. 15: The Great Caledonian Invasion (2)

The presumed route of the invaders follows the second-century Roman road network, though the prevalence of maritime and inland ports might suggest a coincident series of raids on the western and eastern seaboards.