

Appendix 7

The definition of regions, districts, and groups

The purpose of this appendix is to define the regional groupings of ironworks for the purposes of this thesis. In those parts of the country where there were ironworks, they were commonly very scattered. In order to make some sense of them it is necessary to find some means of grouping them together. By the early 18th century the patterns of trading between furnace and forges were complicated, as has been described in chapter 4. Nevertheless most forges probably usually had a main source of pig iron from a nearby furnace, though not necessarily the same one at all dates, and furnaces usually obtained ore from mines in a neighbouring coalfield or other orefield. Accordingly I have found it best to use coalfields (and other orefields) as the basic local groupings, which I have referred to as 'districts'.¹

In many cases, for the sake of convenience, it has been useful to divide these into more local divisions, which I have called groups, but have sometimes referred to as areas. The primary purpose of this was to produce a small enough number of ironworks to enable me to describe them together in a single chapter of in my intended books on the iron industry. Groups generally consist of ironworks that were run by the same ironmaster (or successive ironmasters) over a long period, or those in the catchment of a particular river, but total adherence to either of these as a fixed rule is impracticable. Some groups, such as South Midlands and North Shropshire, are without (or almost without) sources of ore and consist of forges drawing pig iron from relatively distant orefields. It seemed convenient to treat these as separate groups, particularly since they may well have received pig iron from different sources at different times. Nevertheless the whole of the Stour valley in north Worcestershire has been treated as an adjunct of the Black Country, because at different periods forges there drew pig iron from the Black Country proper or from what came up (or down) the river Severn or both. Forges further upstream tended to use more from the coalfield and those downstream from the Clees, the Forest of Dean, America, and Furness. It is difficult to draw a dividing line between the Upper and Lower Stour and the division chosen is a somewhat arbitrary one.² The South Midland group was almost certainly similar, though primarily reliant on pig iron brought from downstream on the river Severn.

¹. The works cited in the footnotes in this appendix generally merely describe the regions in question, or particular works within them. They do not deal with the regional classification, which is something I have devised. The classification used in Riden 1993 is often similar, but is not identical (see below).

². The dividing point is the confluence of the river Stour and the Smestow Brook. The sources of pig iron for the Stour forges appear in Foley a/c and SW a/c, the latter summarised in Ince 1991b, app. 18-19.

Navigable rivers do not make acceptable boundaries, since they were highways serving works on both sides. Accordingly a group in the Gloucestershire district, described as Severn Shore, consists of ironworks both sides of the estuary, and the Wye group includes works both in Gloucestershire and Monmouthshire. Between these I have made the King's Ironworks in the Forest of Dean into a separate district that was only operational during part of the 17th century, and this produces the anomaly that the first Bradley Forge was in this Dean district, but a later one probably on the same site appears under Severn Shore.³ This district also includes the south Midland groups comprised of the Newent coalfield and scattered forges in Worcestershire and Warwickshire.⁴

South Wales had two sources of ore, limonite in an area just north of Cardiff and Newport and ironstone from the outcrop of the coalfield. This provided a reason for dividing the rest of Monmouthshire and most of Glamorgan between a coastal zone with the limonite, where the iron industry operated continuously from the 16th to 19th century and inland groups, in some of which there was a hiatus for more than a century up to 1755.⁵ My West Glamorgan group consists of the hinterland of the ports of Swansea and Neath, and my Carmarthenshire group of the remainder of southwest Wales.⁶

The charcoal iron industry on the West Coast was primarily concerned with utilising 'redmine', the haematite ore of Furness and west Cumberland, though argillaceous ironstone from the coalfields of south Lancashire and west Cumberland also played a part. I have accordingly treated this whole area as a single Redmine district, which I have divided into four extensive groups: Welsh coast (north and west Wales), Furness (including the whole south coast of modern Cumbria and north Lancashire south of the Sands), west Cumberland, and certain works in the Scottish Highlands. These Highland furnaces belonged to companies from Furness proper, which were shipping ore up the coast to this area which then still had unused charcoal resources. However various others (mostly integrated operations) have assigned to a Scotland region. The furnaces on the Welsh coast were placed close to the navigable water of estuaries and were almost certainly similarly dependent on ore imported from Furness.⁷ However the furnaces did not always belong to the Furness iron firms. The largest firm in the area, as described in chapter 4, were the Cheshire Ironmasters, the owners of ironworks stretching from Cannock Chase in Staffordshire through Cheshire, and Lancashire to Furness, and including Dovey and Argyll Furnaces.⁸ Nevertheless it has been necessary to exclude those in Cheshire and north Staffordshire (defined together as the Potteries district) from this West Coast region,

³. As to the iron industry in this region generally see for example Hart 1971; *V.C.H. Glos.* x, 37 150; Tintern: Paar & Tucker 1975; Pickin 1982; Coates & Tucker 1978; 1983; but there are no adequate published accounts of several works.

⁴. Newent: Bick 1987.

⁵. On this region see Rees 1968; Rees (D.M.) 1969; Riden 1992b; 1993; Locke 1916; Brooke 1944-49; Chappel 1940.

⁶. On this region see Riden 1993; Jenkins (E), *Neath*; Rees 1968; Evans 1938; 1967; 1973; 1974; 1975.

⁷. Fell 1908; Riden 1993. Since the scope of this thesis is expressed to exclude Scotland, the products of Argyll, Invergarry, and Lorn should strictly be treated as English imports, but it is simpler to deal with these English 'colonies' as if they were in England. Abernethy belonged to the (English) York Buildings Company and seems to have been an integrated operation, but it is not known where its products were sold. The early works at Loch Maree (Red Smiddy and Fasagh) were certainly Scottish owned, and Glenkinglass does not seem to have been English owned. The latter therefore did not so form adjuncts to the English iron industry: cf. Lindsay 1977; Lewis 1984.

⁸. Awty 1957; King 1993.

because according to any normal definition Staffordshire is in the Midlands, not the Northwest. The adoption of the Mersey and a northern boundary for the Midlands, of course, does not accord with modern practice, but fits with the boundary between the Cheshire Ironmasters and the Cunsey Company before these two associated businesses amalgamated, probably in the 1730s. South Lancashire and west Cumberland, where beds in coalfields also provided ore form separate districts within the West Coast region. Bodfari might have been included in the Midland region and Potteries district as belonging to the Cheshire ironmasters, but this is hardly appropriate to its location at the foot of the Clwydian range or later associations and it has therefore been included in the Welsh coast district.

Because of its extent, the Yorkshire and Derbyshire coalfield has been divided into groups called (from the north) Pennine Dales, Sheffield, and Derbyshire. Derbyshire includes forges in Nottinghamshire, which were generally dependent on Derbyshire furnaces, but Norton Furnace and Forge, being in the outskirts of Sheffield has been included in that group, despite formerly being in Derbyshire.⁹ Further south a small group of works existed in the Trent valley (some of them also in Derbyshire) between Rugeley and Nottingham. These were to some extent dependent on the small Ashby coalfield, but also on raw material from outside the area, particularly slitting and rolling foreign bar iron imported through Hull and evidently intended to be manufactured into finished goods in the Black Country.¹⁰ A case might be made for drawing a line between north and south Derbyshire, to separate the economic zones of Birmingham and Sheffield, but this raises the same sort of problems of definition that were referred to above in relation to the Stour valley. Between the Yorkshire and Northern coalfields is an area where the coal measures are almost entirely absent. In this there were a few ironworks, but so few and of such insignificance that it seemed best to combine them with the orefield of the North Yorkshire Moors, which was also hardly exploited during the period with which this thesis is concerned.¹¹

The Weald contained an enormous number of ironworks. These all depended on the same geological formation for their ore and from a relatively coherent region with a history that is quite different from the rest of Britain in terms of chronology and latterly products, as is described in chapter 6. These have to be treated as a single district. Straker divided this into a large number of small areas and I have combined these into four groups, west, central, north and east, of which north in fact lies to the north of the east group.¹² This leaves a handful of ironworks elsewhere in the south of England, but these were not merely remote outliers of the Weald, though Sowley was also for a period concerned with casting ballast, guns, and shot. I have dealt with these as two districts, Southwest and Thames, the latter having only one doubtful forge, but a number of slitting mills.¹³

⁹. Raistrick 1938; Raistrick & Allen 1939; Hopkinson 1953; 1954; 1961; Riden 1990.

¹⁰. Cranstone 1985a; Riden 1990; King, North.

¹¹. Schubert 1957; Tylecote 1983; King, North.

¹². Straker 1933; Cleere & Crossley 1995.

¹³. Shot- and gun-founding: Hodgkinson thesis; 1996b; ballast: King 1995b; Sowley: Bartlet 1974.

The discussion thus far has mainly been of orefield and other districts, but there are too many of these for them conveniently been used to display regional trends. I have therefore grouped my districts into regions. Often these have no coherence apart from geographic proximity. Thus the Newcastle area is quite unlike Yorkshire, except in that both face the east coast and were therefore particularly subject to competition from Swedish and Russian iron. West Country covers the scattered forges of the South Midlands and Gloucestershire, including both the Severn estuary and Wye valley and stretching into south Herefordshire, east Monmouthshire, and also north Somerset. That portion of Monmouthshire therefore has to be excluded from the south Wales region. The output of the Northwest Midland industry seemed large enough to be worth distinguishing the Black Country from Shropshire (with adjacent areas) as two separate regions. The adjacent areas included with Shropshire in my Northwest Midland region are the Clee district, the Potteries (including south Cheshire) and also Denbighshire, meaning the Upper Severn catchment and the Wrexham area, whose furnaces seem to have supplied forges in Shropshire and Montgomeryshire.

A full specification of the regions (in **bold** type), the districts (in *italics*) and the groups appears below. Groups have sometimes been referred to in the text as 'the (name) area' and a few of these are further divided into subgroups, but subgroups are generally too trifling to warrant separate treatment. This classification is the best I have been able to devise, but neither it nor any alternative can be free of anomalies, for example certain Cheshire forges seem to have supplying iron to ironmongers and smiths in north Cheshire and south Lancashire.¹⁴ The patterns of trade in the iron industry were at least from the mid 17th century increasingly complicated and the construction or closure of new ironworks changed them periodically. I have chosen to adopt regions and so on that were generally fixed in extent and without overlaps between them. This may cause anomalies, but any other such as the usual practice of forming regions purely from groups of counties is liable to result in worse anomalies, for example Madeley Furnace and Norton and Winnington Forges in north Staffordshire and Shropshire had a long history of joint operation and have all been placed in the Potteries group, though strict adherence to the county boundary would divide them.

My classification into districts bears a strong resemblance to that of P. Riden, but he was only concerned with furnaces.¹⁵ That eliminated the difficulties concerning areas such as the south Midlands that lay between two orefields, since their ironworks are mostly forges. He dealt with my Clee and Shropshire districts together and with my Denbighshire district as part of north and west Wales. Our treatments of the West Coast are also slightly different in that I have divided it into several districts. At a regional level we are at one on South Wales, and also with my West Country and his Forest of Dean regions. My Northwest Midland region is the same as his Shropshire with his Cheshire and north Staffordshire, except that mine also includes my Denbighshire district. My North exactly comprises his Derbyshire, Yorkshire, and North East regions, each of which I have reduced to districts, but of the same extent as his regions save that Norton appears in my

¹⁴. Cheshire a/c.

¹⁵. Riden 1993; 1994.

Yorkshire rather than Derbyshire, as explained above. My West Coast region comprises his North West, North Wales (except Denbighshire). Scotland is beyond the subject matter of this thesis, but the furnaces in the Highlands belonging to Furness iron companies can conveniently be regarded as part of my West Coast region, since it was part of the area using redmine, though strictly their products should perhaps be categorised as English imports. If I were including Scotland, I would have made the Scottish Lowlands a separate region, because it became a significant and distinct area of iron production in the industrial revolution, though it made very little iron in the charcoal blast furnace period.¹⁶ That classification is to some extent reflected in the lists of ironworks in subsequent appendices.

Specification

The abbreviations in square brackets are used in certain appendices and in files on the CD-ROM disc.

North

Northeast

(1) Northeast:

Durham and Northumberland except Upper Weardale.

(2) North Yorks.:

a. North Yorks. Moors.

b. North Pennine Dales from Harrogate to Upper Weardale (but including also Shipley).

Yorks.

(1) Pennine Dales:

Industrial West Yorkshire of the Aire, Calder, and Dearne catchments (but including Wortley).

(2) Sheffield

The city of Sheffield and lower Don and tributaries, including Norton (formerly Derbs.), but not other ironworks in Derbyshire.

Derbs.

(1) Derbs.:

Derbyshire and Nottinghamshire except Norton and those parts comprised in Trent.

(2) Trent:

Trent valley and the lower reaches of its tributaries from below Rugeley (Staffs.) to Nottingham, including the Ashby coalfield.

Black Country [BL]

(1) Cannock:

a. Cannock Chase and its vicinity also (Abbots) Bromley Forge.

b. Penk valley.

(2) Tame:

Upper Tame catchment and Black Brook.

¹⁶. Butt 1966; Duckham 1970.

(3) Upper Stour:

The Stour catchment above Stourton (including the Smestow valley) and also Drayton and Weybridge Forges.

(4) Lower Stour:

The rest of the Stour catchment (and also Titton), comprising the parishes of Kinver (except Gothersley Mill), Wolverley, Kidderminster and Hartlebury.

Northwest Midlands [MID]***Denbs.***

(1) Denbs.:

Denbighshire (principally Wrexham area).

(2) Border:

East Montgomeryshire and northwest Shropshire (but including Chirk).

Potteries

(1) Potteries:

Mid and north Staffordshire with Winnington Forge (Salop).

(2) Cheshire:

Weaver and Mersey valleys

Salop

Shropshire except northwest Shropshire and Clee area (also Upper Arley).

Clee

Clee Hills and Wyre Forest coalfields (including whole Teme valley except Powick).

Note: References in the text to the west Midlands may sometimes include both 'Black Country' and 'Northwest Midlands'.

West Country [WEST]***Gloucs.***

(1) Dean:

The King's ironworks in the Forest of Dean only.

(2) Severn Shore:

Tributaries of the Severn estuary together with Somerset (but excluding Dean).

(3) Wye:

River Wye and tributaries in Monmouthshire, Gloucestershire and Herefordshire.

(4) South Midlands:

Worcestershire (except northwest Worcestershire and Stour valley), south Warwickshire, and Newent coalfield (Glos.)

South Wales [S.WALES]

Wales SE

- (1) Cardiff & Newport (sometimes abbreviated to Card. & Newp.)

Cardiff and Newport area including limonite orefield north of Cardiff.

- (2) Mons. NW

Northwest Monmouthshire but including Llanelly (formerly Breconshire), Llangrwny, and certain other ironworks south of river Usk.

- (3) Glamorgan N.

Merthyr Tydfil, Aberdare and Rhondda areas.

- (4) Brecon

Ironworks at Brecon and Pipton.

Wales SW

- (1) Glamorgan W.

Swansea and Neath valleys, also Aberavon Forge.

- (2) Carmar.

Carmarthenshire and Pembrokeshire, also Coedmore Forge (Cardiganshire).

West Coast

Lancs. S.:

Lancashire south of river Ribble also northeast Cheshire but not Holme Chapel and the head of the Calder valley.

Cumberland:

Cumberland (except Millom area), but including adjacent parts of Scotland.

Redmine

- (1) Furness:

North Lancashire both sides of the Sands including Furness, also Millom (Cumberland).

- (2) Welsh coast:

Coastal counties of Wales from north Cardiganshire northwards (excluding southeast Denbighshire).

- (3) Highland B:

Argyll, Invergarry and Lorn Furnaces on the western coast of the Scottish highlands.

Strictly the Highlands should be beyond the subject matter of this thesis, but it is simpler to treat them as part of this region than to treat their products as English imports.

South

South

Hampshire (except works near Haslemere) and Devon.

Thames

The Thames valley including north Kent and north Surrey (an area probably without furnaces or finery forges).

Weald

(1) Central:

Adur; Arun N; Mole; Ouse W.

(2) East: the southern part of the eastern Weald

Ashburn; Asten; Brede; Cuckmere; Maresfield; Rother Low; Rother Mid; Rother Up; Uckfield.

(3) North: the northern part of the eastern Weald

Ashdown E; Ashdown N; Eden; Kent; Medway Up; Teise.

(4) West:

Arun; Wey.

Scotland [SCOT]

(1) Highland A:

The Highlands (except Argyll, Invergarry and Abernethy)

(2) Lowland:

Tarrioch and Carron, together with numerous other coke ironworks.

This Scotland region is excluded from the totals from the calculations made for this thesis, as these relate to England and Wales only. However estimates of production in Scotland are included in some tables and appendices.