

2. EVOLUTION OF THE LANDSCAPE

PHYSICAL INFLUENCES

- 2.1. This section of the chapter outlines the main physical processes which have determined the solid and drift geology, and the patterns of hydrology and topography of Glasgow and the Clyde Valley today. These attributes represent the physical structure of the landscape and are fundamental to its present character. **Figures 2.1 and 2.2** show the solid geology and the drift geology of the study area respectively. **Figure 2.3** shows the area's topographic structure.

Solid Geology

- 2.2. Most of Glasgow and the Clyde Valley is within the Midland Valley of Scotland: a geological rift valley bounded by the Highland Boundary Fault to the north and Southern Upland Fault to the south. These faults run roughly parallel to each other, about 50 miles apart, from the south west of Scotland to the north east coast. The rift valley has been formed by the unit of rocks between these faults being displaced downwards, creating a body of land of generally lower altitude than those bordering units to the north and south. Glasgow and the Clyde Valley occupies a large central portion of this rift valley: from the Firth of Clyde around Wemyss Bay in the west; inland as far as the western edge of the Pentland Hills; north from the Campsie Fells; and south over the Southern Upland Fault into the Southern Uplands.
- 2.3. Land to the north of the Highland Boundary Fault is comprised mainly of hard metamorphic rocks of the Dalradian complex. These formations do not outcrop in the study area, but fragments of them occur in the glacial deposits which overlay much of the area. These are discussed below. South of the Southern Upland Fault, the rocks are Silurian and Ordovician sedimentary formations. These are generally fine grained and form greywackes, shales and mudstones. These rocks have proved relatively resistant to weathering and have formed the rounded hills and plateaux of the Southern Uplands.
- 2.4. The rocks of the Midland Valley itself are principally sedimentary and of the Old Red Sandstone and Carboniferous formations. Additionally, contemporaneous igneous rocks in the form of lavas and tuffs, and numerous intrusions such as plugs, dykes and sills also outcrop. The differential erosion of these harder igneous rocks and the softer sedimentary forms on which they lie has had a significant role in creating the present day landforms and landscape.
- 2.5. There is a broad distinction between the main hill regions and plateaux areas which are formed from, or capped by, the extrusive volcanic rocks, and the lowland areas which tend to be sedimentary in origin. In particular, the lavas which cap the Kilpatrick Hills, Campsie Fells and Renfrewshire Hills create the distinctive 'stepped' or terraced slopes. Igneous intrusions have created the features such as Dumbarton Rock (volcanic neck) and Tinto Hill (felsite laccolith). Similar landforms are found in neighbouring areas outwith the present study area.

- 2.6. The remainder of the study area is comprised of Carboniferous limestones, grits and coal measures, generally forming the lower ground and basin areas. While these rocks also form the exposed central plateau between the east and west sides of the country around Shotts, Harthill and Caldercruix, the highest points of the plateau are still notably lower than the igneous hills elsewhere in the Midland Valley. As later sections will show, the coal measures which underlie much of the basin have had a very significant influence on the pattern of industrial development and settlement in the study area. However, their contribution in terms of physical landform is relatively limited.
- 2.7. The shapes and forms into which the rocks of the area have been eroded and moulded reflect millions of years of weathering under a variety of climatic conditions. In particular, the actions of successive glaciations have carved the rock surfaces, deepening and over-deepening valleys and basins, and sculpting other rock features. Fluvial erosion had a continuing influence over the millions of years before the Ice Ages, and over thousands of years since the withdrawal of the last glaciers.

Glacial Erosion

- 2.8. During periods of glaciation there are thought to have been a number of ice sheets centred on different locations in Scotland. At their maximum extent, these would all have been connected to form a single sheet over most or all of Scotland, possibly joining the main Scandinavian ice sheets over the North Sea. One of the major centres of ice dispersal in Scotland was centred over the Rannoch Moor area, and it is ice originating from that area which had the greatest effect on the study area.
- 2.9. Ice from the Rannoch sheet travelled south down what is now Loch Lomond, along the Clyde Valley south and east towards the Southern Uplands and Edinburgh. A further branch flowed west towards the Firth of Clyde. The Southern Uplands themselves are thought to have held a similar, but smaller, ice sheet with glaciers of considerably less erosive power. This movement has been traced from the shapes and orientation of rock features which have been streamlined by ice over many glaciations. Also, deposits known to have been left by ice of the most recent period of glaciation to affect the whole area, (the Dimlington Stadial, around 26,000-13,000 years ago) indicate where ice travelled. The distribution of pieces of Glen Fyne granite for example, the source of which is located at the northern end of Loch Lomond, shows that ice transporting this rock must have extended far up the Clyde Valley.
- 2.10. A small readvance of the Scottish ice sheets occurred between 11,000 and 10,000 years ago; known as the Loch Lomond Stadial or readvance, it had a small effect on parts of the study area. Small areas of land around Loch Lomond itself have been very slightly modified by glaciers from that time, and there has been speculation that some small glaciers may have formed on higher ground in the Southern Uplands.
- 2.11. The main ice-cut basins and valleys in the study area are the Loch Lomond-Leven Valley, Strathblane, the Glasgow basin (or Howe of Glasgow) and the inner Clyde Valley for most of its length. These channels were present prior to the advance of the ice, probably formed by pre-glacial rivers over millions of years, but were deepened further by the glaciations. Much of the Glasgow basin, which now holds most of the conurbation, has been infilled with deposits from the Dimlington Stadial and later periods when sea levels were higher, flooding much of the Clyde Basin.

FIGURE 2.1

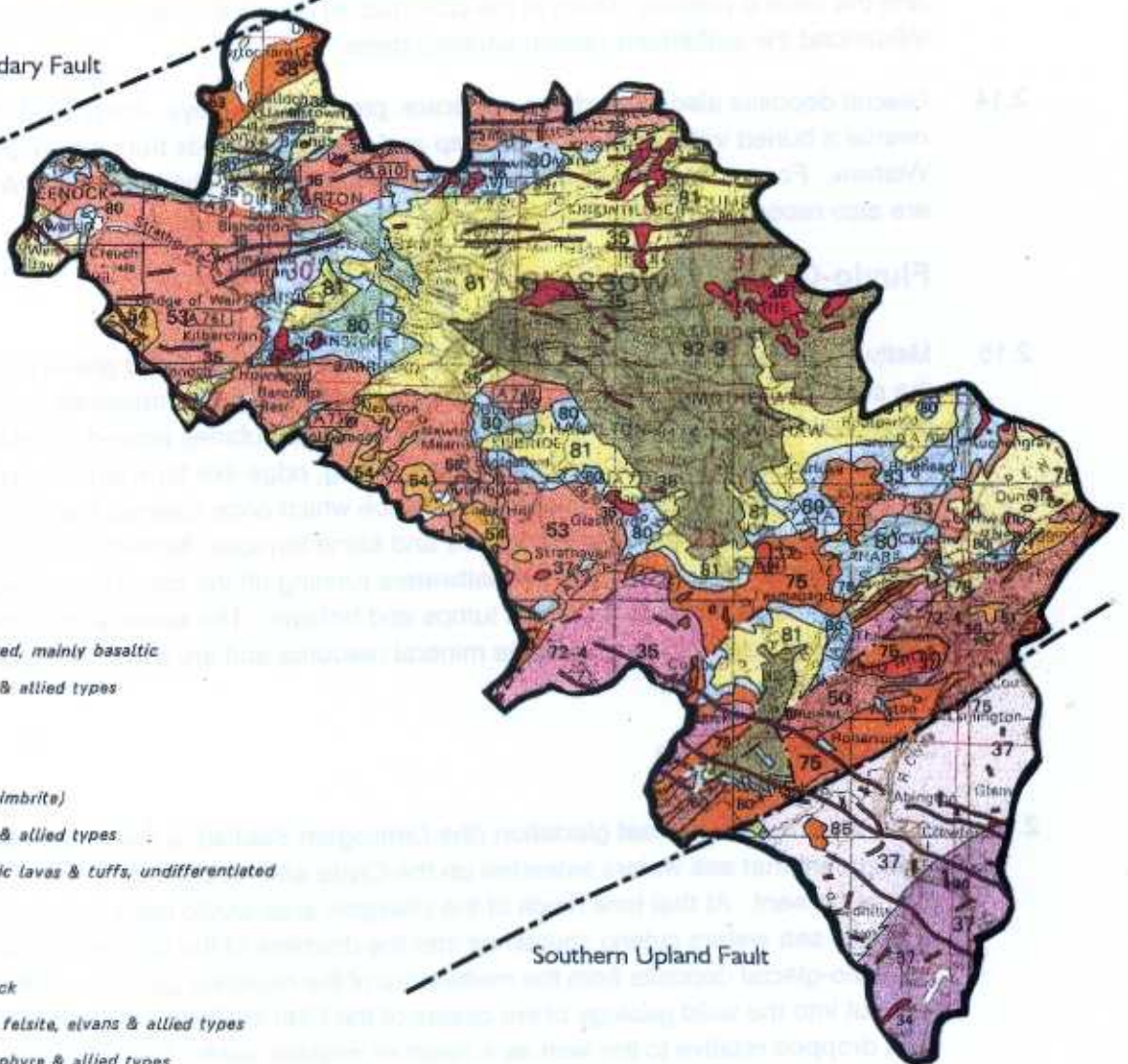
- 82-3 Westphalian ("Coal Measures")
- 81 Namurian ("Millstone Grit Series")
- 80 Tournaisian & Viséan ("Carboniferous Limestone Series")
- 79 Basal Conglomerate (including possible Devonian)

- 78 Upper Old Red Sandstone
- 77 Middle Old Red Sandstone
- 75 Lower Old Red Sandstone, including Downtonian

- 74 Ludlow
- 73 Wenlock
- 72 Llandovery

- 70-1 Ashgill & Caradoc (includes small inliers of Araniq-Llandoyle in Scotland)

Highland Boundary Fault



- 55 Tuff, undifferentiated, mainly basaltic
- 54 Rhyolite, trachyte & allied types
- 53 Basalt & spilite
- 52 Tuff (including ignimbrite)
- 51 Rhyolite, trachyte & allied types
- 50 Andesitic & basaltic lavas & tuffs, undifferentiated
- 49 Basalt & spilite

- 38 Agglomerate in neck
- 37 Rhyolite, trachyte, felsite, elvans & allied types
- 36 Porphyrite, lamprophyre & allied types
- 35 Basalt, dolerite, camptonite & allied types

Solid Geology

Glacial Deposition

- 2.12. The materials eroded by glaciers were subsequently deposited by the glacier or by meltwaters associated with the ice. These deposits can simply be a blanket-like covering of material plastered onto rock surfaces in varying thicknesses, or they can be specific and separate landforms related to the particular mode of deposition. Such deposits are extensive throughout Glasgow and the Clyde Valley and make a significant contribution to the present landscape.
- 2.13. The general area of the Glasgow basin has a thick layer of glacial deposits. These were moulded underneath the last glaciers to form streamlined hummocks known as drumlins. Drumlin fields extend south and east from Loch Lomond in the north, towards Ayrshire and the central plateau. Much of the conurbation is built over drumlins, and they have influenced the settlement pattern adopted there.
- 2.14. Glacial deposits also fill, and can obliterate, pre-glacial valleys. Parts of Motherwell overlie a buried valley around 50m deep and another extends from Kirk o' Shotts to Wishaw. Former courses of some tributaries of the Clyde, the Mouse and Avon waters, are also recorded by deep buried valleys.

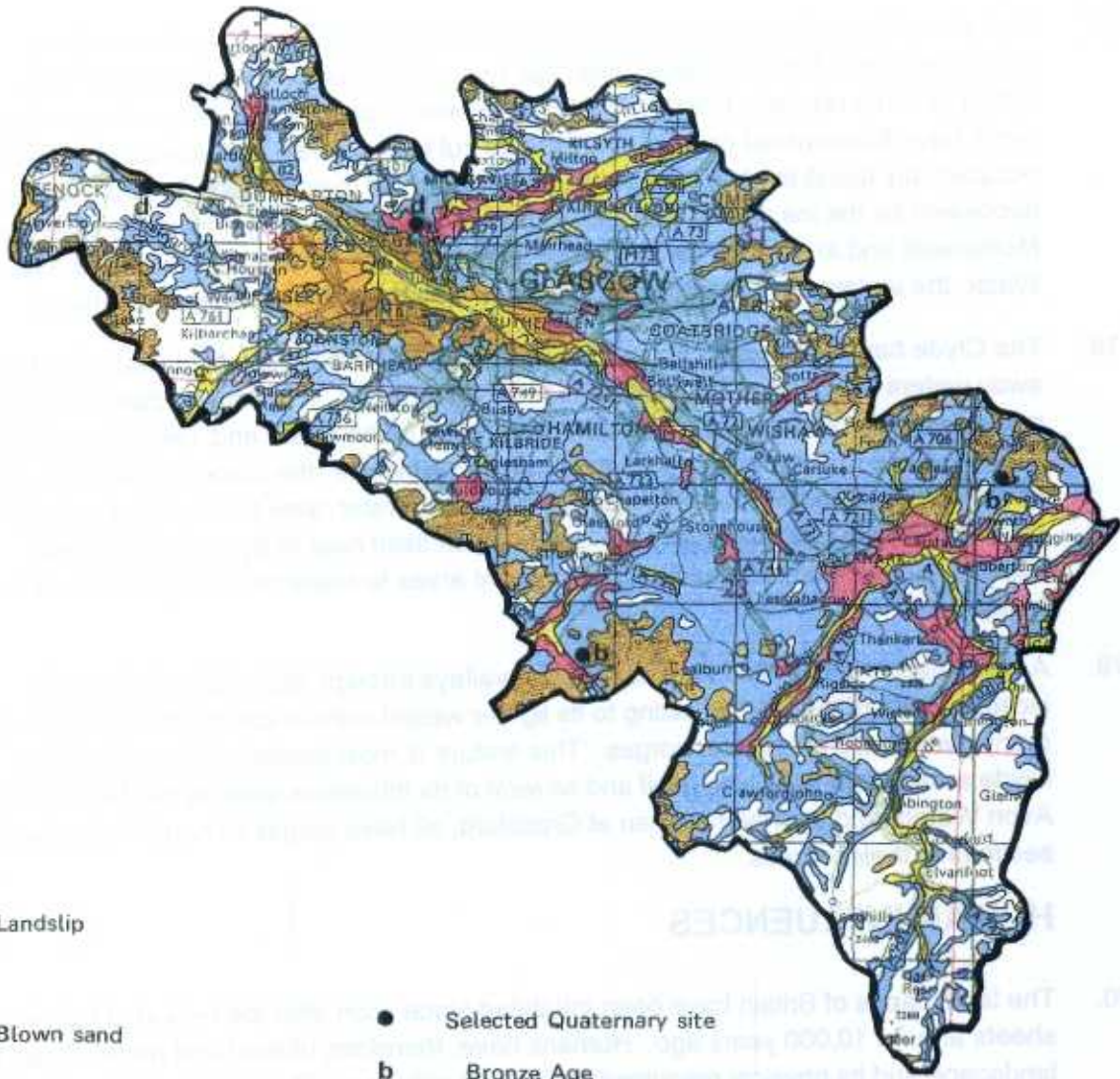
Fluvio-Glacial Deposition

- 2.15. Meltwaters from the glaciers deposited large volumes of sand and gravel over parts of the study area. There are great accumulations of fluvio-glacial materials (which were deposited by meltwaters) in the upper Clyde Valley tributaries around Carstairs and in the Douglas Valley. The Carstairs Esker is a long, ridge-like form which was deposited by a river or stream running underneath the ice which once covered that area. Other related landforms in the area are kames and kame terraces, formed from deposits left at the margins of the ice and land by meltwaters running off the ice. These features tend to form a chaotic hummocky terrain of lumps and hollows. The sands and gravels of these deposits are now a financially viable mineral resource and are extracted in some parts of the study area.




Sea Level Change

- 2.16. In the aftermath of the last glaciation (the Dimlington Stadial), a rise in the relative sea level meant that sea waters extended up the Clyde and reached up to some 25m higher than at present. At that time much of the Glasgow area would have been under water, with tidal sea waters cutting shorelines into the drumlins of the Glasgow basin and into the fluvio-glacial deposits from the meltwaters of the receding glaciers. Cliff lines were also cut into the solid geology of the coasts of the Firth of Clyde. Subsequently, the sea level dropped relative to the land as a result of isostatic uplift. This left the former cliffs and beaches dry and raised above sea level. The raised beaches of the Firth of Clyde are now important topographic features utilised as communication and development corridors.

FIGURE 2.2



 Landslip

-  Blown sand
-  Peat
-  Lacustrine clays, silts and sands
-  Alluvium (including River Terrace Deposits in Scotland)
-  River Terrace Deposits (mainly sand and gravel)
-  Raised Beach and Marine Deposits
-  Glacial sand and gravel
-  Boulder clay and Morainic Drift

- Selected Quaternary site
- b** Bronze Age
- n** Neolithic
- m** Mesolithic
- p** Palaeolithic
- c** Cave
- d** Dated by radiocarbon measurements or pollen analysis

Drift Geology

Fluvial Erosion

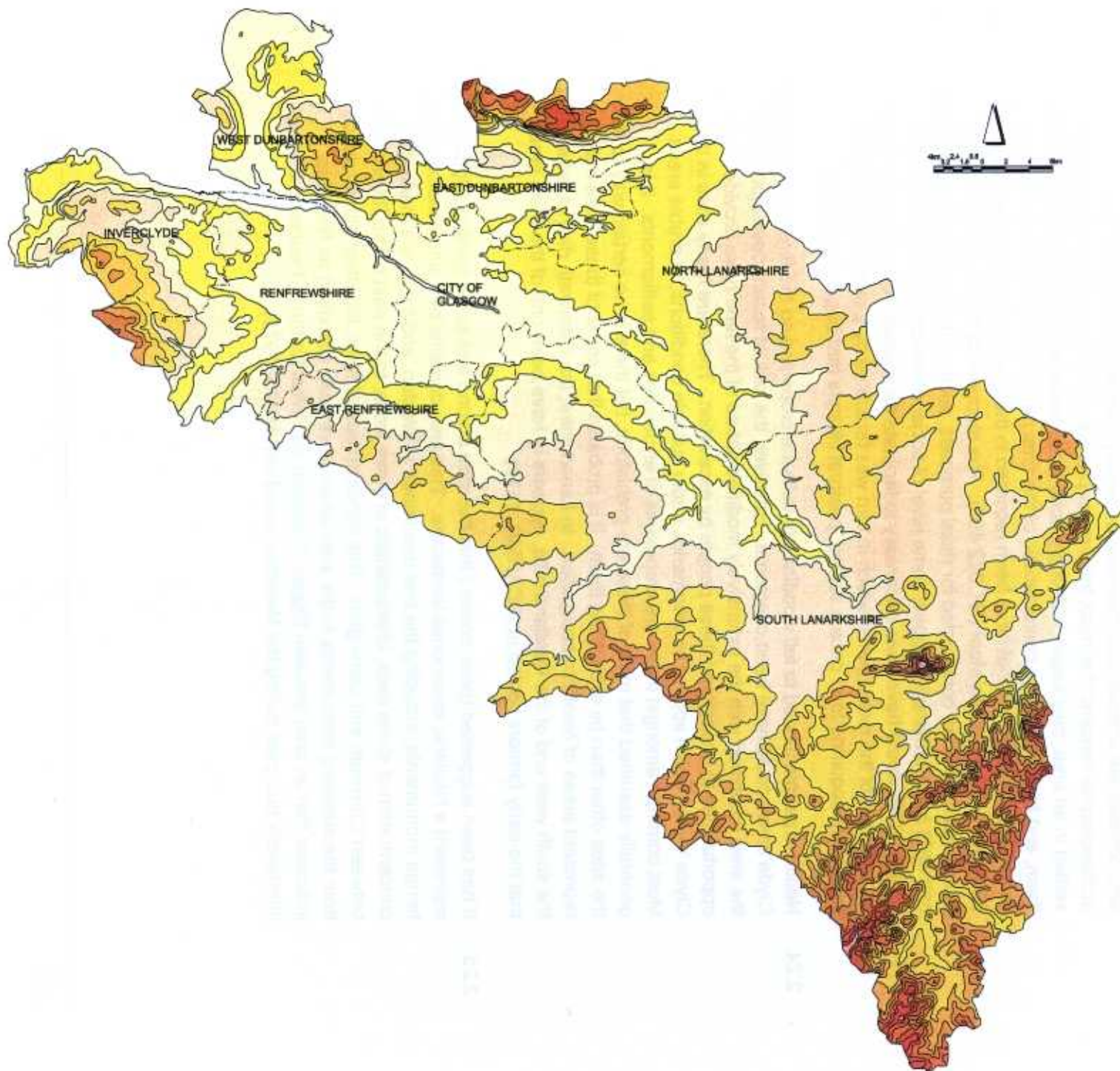
- 2.17. Postglacial rivers have cut channels through the soft deposits of the valley floors to create terraces. The postglacial drainage system of Glasgow and the Clyde Valley differs in some respects to that which existed prior to glaciation. While many postglacial rivers have followed old courses, they had to cut through new deposits and have only occasionally found the true rock valleys through which they formerly flowed. Where deposition by the ice and its meltwaters filled-in preglacial valleys, as is the case near Motherwell and in some of the Clyde tributaries such as the Mouse Water and Avon Water, the waters have been forced to find new courses through these sediments.
- 2.18. The Clyde has 'captured' a number of new tributaries since the last glaciation, taking away waters which once flowed east to the Tweed valley. It is thought that at some time prior to the last period of glaciation, the watershed of the Clyde and Tweed waters was situated close to the present location of Lanark. However, the Clyde had enough erosive power to cut backwards to collect firstly the Mouse Water, then the Douglas and the North Medwin Water, and finally the Upper Clyde itself near to Symington. These tributaries have also extended their catchment areas to make the Clyde the size it is today.
- 2.19. A combination of the need to reinstate river valleys through deposits or rocks, and isostatic uplift of the land adjusting to its lighter weight without ice sheets, has meant that many rivers have cut narrow gorges. This feature is most pronounced in the upper Clyde area where the Clyde itself and several of its tributaries such as the Mouse and Avon Waters and the River Nethan at Crossford, all have gorges or narrow steep-sided sections to their courses.

HUMAN INFLUENCES

- 2.20. The landscapes of Britain have been inhabited since soon after the retreat of the last ice sheets around 10,000 years ago. Humans have, therefore, utilised and manipulated the landscape and its physical resources for several millennia. The results of this activity can be essential characteristics of the landscape, although a legacy from all periods of history may not be evident. This part of the chapter seeks to summarise how humans have influenced the physical landscape of Glasgow and the Clyde Valley. Glasgow University Archaeological Research Division (GUARD) have attempted to map, in very broad terms, the principal concentrations of archaeological sites from different periods. The results are shown in **Figure 2.4**. Later influences, including the 18th, 19th and 20th century patterns of settlement and land use have not been mapped since these are more pervasive in the existing landscape character, as described in the following chapters.

Mesolithic Period (7,000-4,000BC)

- 2.21. It is thought that in Mesolithic times the majority of the study area was covered, as was the rest of the central part of Scotland, in woodland and scrub-type plant communities, with areas of open moor and grassland on the higher areas. While there is evidence of Mesolithic people exploring the western seaboard of Scotland, there is sparse evidence of activity elsewhere within the Clyde Valley. This is not to say that activity was absent in this period, but may simply represent a lack of present day evidence.



**GLASGOW AND THE CLYDE
VALLEY LANDSCAPE ASSESSMENT**

TOPOGRAPHY

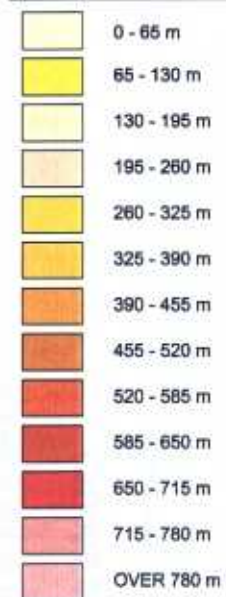


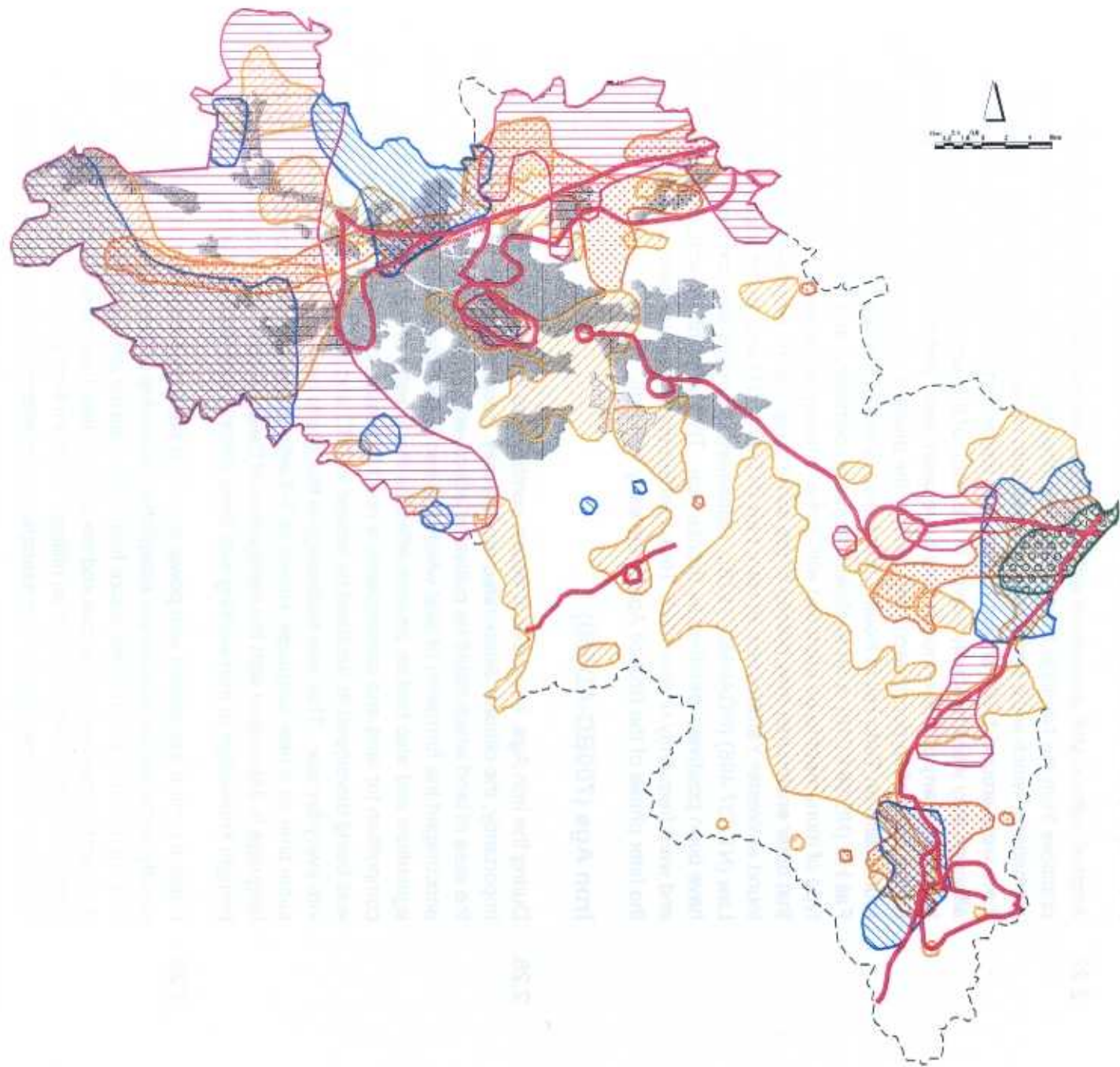
FIGURE 2.3

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- 2.22. These people left little evidence of their passing due to their nomadic lifestyle. They survived by hunting, gathering and fishing and made only temporary shelters. Exceptions are the Mesolithic workshop site at Woodend Loch near Coatbridge, where flint instruments such as arrowheads, axes and scrapers were made, and the settlement sites found on terraces above the River Clyde between Crawford and Lanark. The absence of burial sites may only indicate that none of these have been identified as yet.

Neolithic Period (4,000-2,500BC)

- 2.23. The Neolithic period is marked by the appearance of pottery in the archaeological record, and heralds a change from an economy based on hunting and gathering with its attendant need to move around the countryside. People began to cultivate food crops and domesticate animals, and this more sedentary lifestyle is reflected in the archaeological remains that mark this time in prehistory. Perhaps, because people settled in an area, they began marking places in the landscape which were important to them, and burial traditions characteristic of this time remain today in the form of long cairns such as the ones that have been recorded in the Clyde Valley at Burngrange (NT 030 495) and on Greens Moor (NT 022 495). The monuments that remain which are thought to have been constructed for ritual purposes, such as the henges at Weston (NT 030 457) and Normangill, suggest some level of social cohesion among the Neolithic people. This would have been necessary to facilitate the massive effort required in the construction of the monuments, which in turn was facilitated by a reduced amount of time spent acquiring food once a settled, pastoral lifestyle had begun to develop.
- 2.24. Neolithic people tended to fell woodland to cultivate crops and so the forests of the lower Clyde areas could have been overcome. However, the lack of recent developments in the area combined with the extensively modified nature of the land have provided few opportunities to understand these people by excavation. There are many sites in the Clyde Valley which appear as cropmarks, under suitable conditions, in arable areas. Most common amongst these are cropmarks of enclosures and settlements. It is generally assumed that most of these are prehistoric, but there is no certain way to date the sites other than by excavating them. It is probable that some of these sites may represent areas of Neolithic occupation. In Lanarkshire, the Carnwath district, situated at the south west end of the Pentland Hills, appears to have been one of the main areas that the early farmers settled in (RCAHMS, 1978).
- 2.25. It has been suggested (pers. comm.) that the area around and to the north of Biggar may represent a Neolithic ceremonial landscape. This area contains two, and possibly three, henge monuments, including the one mentioned at Weston, and there is a marked concentration of stone axes, characteristic of these times, to the east of the River Clyde between Carnwath and Lamington. This concentration of axes, together with evidence from the surviving monuments in the area which have been classified as Neolithic, indicates that an area between Biggar, Carnwath and West Linton in Peeblesshire was intensively occupied during the Neolithic period (RCAHMS, 1978).



GLASGOW AND THE CLYDE VALLEY LANDSCAPE ASSESSMENT

HISTORICAL LAND SURVEY

-  PREHISTORIC
-  MESOLITHIC
-  NEOLITHIC
-  BRONZE AGE
-  IRON AGE
-  ROMAN
-  MEDIEVAL

FIGURE 2.4

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Bronze Age (2,500-700BC)

- 2.26. The Bronze Age marked a time of change for people, due mainly to the arrival of immigrants from the Rhine basin and also possibly from the Atlantic coasts of Europe (RCAHMS, 1978). These settlers brought with them a new style of pottery, known as Beaker ware, which has come to be associated with Bronze Age activity. They also introduced copper technology, which by around 2,000BC in some parts of Scotland, was replaced by bronze working. The Bronze Age was also a time when the settled area of land expanded considerably, often into areas of land that would these days be considered too unproductive for farming. This increased activity, and the survival of remains in areas that today are considered to be of marginal agricultural importance, probably represents the last time that these areas were cultivated.
- 2.27. Another cultural shift associated with this time is the gradual change in mortuary practices from the Neolithic traditions of collective burial, to individual inhumations or cremations, which were sometimes covered with round cairns or barrows. By 1978, there were around 1,800 known Bronze Age cairns and barrows in Lanarkshire alone, although they were relatively scarce in the north of this area (RCAHMS, 1978). However, many of these monuments have been destroyed by antiquarian excavations (which were often poorly recorded), and by the process of agricultural improvement. The round cairn on Tinto Hill in South Lanarkshire is one of the largest cairns in Scotland. Fall Hill (NS 961 218) is an enclosed cremation cemetery, and the only example of this type of monument to be identified with some certainty in Lanarkshire, but it is possible that other enclosures may belong to the same class. Some examples of these are to be found at Wester Yardhouses: at Hare Law (NT 005 501) and, to the south east, at Horse Law (NT 037 498) (RCAHMS, 1978). Settlements from this time are rare and not many have been positively identified as Bronze Age. They were often located on valley sides and were frequently unenclosed. These settlements, however, tend usually to be from the later phase of the Bronze Age or the early Iron Age.

Iron Age (700BC-AD500)

- 2.28. During the Iron Age, a number of factors combined to influence the study area. Importantly, the climate deteriorated dramatically, becoming colder and wetter, reducing the area of land which could be cultivated effectively. This climate change also encouraged the formation of peat which reduced further the amount of land available for agriculture and also had an adverse effect on the forestry of this area. This led to competition for land and consequently a need to acquire or defend land. An iron industry was being developed in Scotland by around 500BC and iron tools and weapons came into everyday use. This new technology is thought to have developed at around the same time as a new language, known as P-Celtic Gallo-Brittonic, appeared. The new language is associated with the immigration of Celtic people, who may also have brought knowledge of iron working with them (Ritchie and Ritchie, 1991).
- 2.29. Political control associated with power over land became a major feature of Iron Age society and a warlike aristocracy established defensive settlements. These defences took many forms and ranged in size from large, heavily defended forts to smaller forts, duns and homesteads. Glasgow and the Clyde Valley has the remains of many such fortifications, frequently located on hilltops. Fallburn Fort in South Lanarkshire and Walls Hill Fort in Renfrewshire are fine examples of defences from this period. Dumbarton

Rock, whilst lacking fortifications from this period, was probably used during the Iron Age, and was to become a principal stronghold for one of Scotland's later kingdoms.

- 2.30. Although such fortifications have left the strongest imprint on the landscape from Iron Age peoples, they did not normally live in the structures. More usually, farmsteads were the main centres of habitation and it was common for farms to be developed and redeveloped on the same site over time. It is probable that many of today's farms are located on earlier sites of perhaps Iron Age (or earlier) origin and that ancient field systems are overlain by more recent ones. Current place-names often provide an indication of these settlements' historic origin. One such field system, and the only one surviving in Lanarkshire that may be prehistoric or Roman, is Ellershie Hill (NS 955 194). This is a series of rectangular fields and small clearance cairns close to an unenclosed platform settlement. However, these are not thought to be contemporary as the two have never been recorded together before (RCAHMS, 1978).

Roman Occupation (c.AD80-AD200)

- 2.31. Glasgow and the Clyde Valley has some of the best evidence of the period of Roman occupation in Scotland. From around AD 80, the comparative isolation of Scotland was disrupted when Agricola, the governor of Roman England, drove northwards to establish control over most of the lowlands of Scotland over a period of four years. Dominance was assured by a network of roads and forts which allowed the Romans to contain troubles and to prevent raids from tribes living to the north of the Highland Line. It is thought that the Selgovae, whose territory consisted of the Upper Tweed Valley and the easternmost part of the Clyde Valley, were opposed to the Roman invasion. This hostility is represented in this area of the Clyde Valley by the more numerous traces of Roman occupation there. The fort at Castledykes and its associated annexes and temporary camps may have been constructed on the border of the lands of the Selgovae where they met with those of the Damnonii, who were sympathetic towards the Roman presence.
- 2.32. European conflicts caused the Romans to require troops nearer home and drew on resources so as to make occupation of the lowlands impossible. By AD 90 it is thought that the Roman forts had all been vacated. By the 120s, consolidation in England was assisted by the construction of Hadrian's Wall. Imperial policy resumed the reoccupation of lowland Scotland following the accession of Antoninus Pius as emperor in AD 138. During the reign of Antoninus, the frontier system of which the Antonine Wall was a major element, was constructed to link the firths of Clyde and Forth. This valley of the Clyde was linked to England by a road following much the same route as the present day A74. A major revolt around the late 150s is thought to have caused the early Antonine occupation of Scotland to retreat to England for a short time, followed by a reoccupation and a final evacuation by the 160s. Although the Roman army maintained its presence in southern Scotland till the 4th century, it was concentrated on the east side of the country and had no permanent presence in west-central Scotland.
- 2.33. The most significant assemblage of Roman remains in the study area is the Antonine Wall, the line of which runs from Old Kilpatrick in the west through East and West Dunbartonshire and North Lanarkshire to Allandale in the east. In places along its length it is still visible as a rampart or ditch, and it has a number of forts, fortlets and camps associated with it. Fair sections of remains of the earthworks can be seen at Croy Hill, North Lanarkshire and at Bar Hill (Roman fort) and New Kilpatrick Cemetery, East

Dunbartonshire. Other remains include the Bearsden Bath House, East Dunbartonshire, the fortlet at Lurg Moor, Inverclyde, and the Redshaw Burn fortlet, South Lanarkshire.

Dark Ages (c.AD200-AD1000)

- 2.34. The Dark Ages, a period more accurately described as the early historic period, were characterised by many political and religious changes. There are relatively few records and very little archaeological evidence from this period: much of the history has been pieced together from the works of religious chroniclers working many years later.
- 2.35. Glasgow and the Clyde Valley was, along with much of the rest of west central Scotland, absorbed within the kingdom of Strathclyde, whose lands included the general areas of Dumbarton, Lanark, Renfrew and Ayr, with the seat of Strathclyde at Dumbarton Rock. The period saw much fighting between the different kingdoms of Scotland: the result of such instability being a lack of time and resources for construction of substantial buildings which could have survived to the present day.
- 2.36. Christianity was introduced to west central Scotland in the early 5th century by Ninian, who carried out missionary work from his base at Whithorn, Wigtownshire. It is Christianity that has left the greatest impression on the landscape from this period through the tradition of stone carving: raising ornate crosses, memorial stones and gravestones; examples are the Barochan Cross in Paisley Abbey, the hogback tombstones and sarcophagus in the Old Parish Church of Govan, and the stones in the New Parish Church in Inchinnan.

The Medieval Period (AD1200-AD1600)

- 2.37. During the medieval period, the Scottish Crown sought closer links with the Norman aristocracy of England. The Norman influences which subsequently arrived changed the nature and style of architecture, the Church and Land laws. By the 13th century, much of lowland Scotland was a feudal state society with castles, churches and towns. The Normans established shires, governed by feudal lords, as the principal form of administrative unit.
- 2.38. The church was reorganised during this period to follow the rest of western Christendom. The new structure was based on territorial divisions where a Bishop controlled a diocese from a cathedral base. The diocese was then further divided into parishes, each with its own church and priest. The early parish churches have largely been replaced with more recent buildings, but a piece of the original church in the form of a 12th century Romanesque arched doorway is present in the wall of the post reformation church at Lamington in South Lanarkshire.
- 2.39. The feudal overlords in medieval society granted lands and delegated functions to lesser lords and their vassals. The lands granted form the basis of many estates in Glasgow and the Clyde Valley and at the centre of these estates control was exercised from castles, home farms, tower houses or mansions. Early castles took the form of earthwork and timber mottes and baileys. A very well preserved motte can be seen on the golf course at Carnwath. The glaciated landscape around the Clyde allowed easy conversion of drumlins and other glacial features into these defensive structures, and to a certain extent influenced their location. Many of these were gradually replaced during the 13th century with stone structures. An example of this can be seen at the Bishop's

Castle in Glasgow, where excavations show that a stone hall was added to an earlier earthwork castle (Ritchie and Ritchie, 1991).

- 2.40. It was during the medieval period that many of the towns in the study area were first established. Comparative stability and the new social order allowed trade to expand, and the main towns grew with merchants, minor nobles and a tertiary population of servicers such as market gardeners, artisans and tradesmen.
- 2.41. The majority of the medieval population was involved in farming through feudal tenancy agreements. Farm units tended to be a group of dwellings for several families with gardens or kailyards attached. Nearby was an "infield", an area intensively farmed on a run-rig system. Beyond the "infield" was the "outfield", which was cultivated but used less intensively and allowed fallow periods. The surrounding "common" areas of rough pasture were used for cattle grazing.
- 2.42. This system, which followed the patterns established during the Iron Age, continued until the agricultural revolution of the 18th century. It was responsible for further removing woodland from the study area until it was largely devoid of ancient or semi-natural woodland. The religious orders, and particularly the monasteries, were responsible for large areas of land into which new agricultural techniques, crops and crafts were introduced. A vast area of Lanarkshire, for example, at this time appears to have been granted to the monks of Kelso Abbey.

18th and 19th Centuries

- 2.43. After the Act of Union in 1707, the pace of economic, political and social change increased dramatically. Throughout the medieval period, the landscape had changed very gradually: small changes to patterns which had existed for hundreds of years. Post-medieval Scotland, however, saw agricultural improvements, industrialisation, urban development and population growth all combining to change dramatically the landscape of Scotland and particularly west central Scotland.
- 2.44. The improvements in agriculture during this period had a significant effect on the landscape. This had as much to do with longer tenancy agreements as with the new technologies being introduced, and encouraged farmers to carry out longer term improvements to the land. Land was drained and enclosed, increasing the productivity, field sizes and human control over the land. Also, buildings were now built out of stone and remains of houses, bothies and steadings dating from around this period can be seen in remoter parts of the study area.
- 2.45. Increased rental revenues from the land made landowners richer and helped to finance the mansions and planned landscapes of the estates. Within the study area, one of the finest examples is the grounds of the Hamilton estate with the now demolished Hamilton Palace and the still present Chatelherault garden building built in 1732. Estate planned landscapes throughout the study area tend to have their origins in the 18th or 19th centuries and many have since suffered from decline. In part, this reflects the changing economic position of many estates.

- 2.46. Urban growth and industrial expansion occurred simultaneously, starting towards the end of the 18th century and due primarily to the loss of the American colonies which changed the trading patterns of the time. Initially, spinning and weaving industries expanded; this is recorded dramatically by the cotton mills of New Lanark. These used the waters of the Clyde for power, and employed up to 2,000 workers to create one of the first mass production factories. Renfrewshire too had a major cloth weaving industry which grew around Paisley. Much of the preparatory work on the cloth was carried out by outworkers in the surrounding villages: a weaver's cottage is still present at Kilbarchan.
- 2.47. By the start of the 19th century, heavier industries such as coal and iron ore mining, heavy engineering and ship building were starting to expand. The most accessible coal measures in the study area were mined, as were locally abundant supplies of iron ore and limestone. The Clyde and the Glasgow basin became one of the world's major industrial locations of the 19th century. Ships were built all along the shores of the Clyde with major centres at Greenock and Port Glasgow in the west and Govan near the centre of Glasgow itself. The Forth-Clyde Canal, built in the late 18th century, allowed good bulk transport with the east coast and allowed places such as Kirkintilloch to build smaller boats such as tugs for the Clyde. While little can now be seen of the working of the coal and iron industries from the 19th century, cast iron street furniture which was made during this period can still be seen in many towns in the study area.
- 2.48. As the industries grew, so did the urban area within Glasgow and the Clyde Valley. The need for labour meant that the study area became a magnet for migrants from the Highlands and other parts of Scotland as well as from England and Ireland. With so many new people in the area, the towns expanded to support them, industry owners employing them grew richer, and towns grew with bulk housing for the poor and extravagant homes for the wealthy. It was around this time that Glasgow grew to become the physical and economic centre of the area. Between 1755 and 1851 the population of Glasgow grew from around 23,500 to around 333,500, and by the beginning of the 20th century was close to 800,000. Around the mid-19th century, the railways were established and this allowed further dispersal of people from Glasgow to the towns of the Clyde both up- and down-stream. The introduction of the railway network to Lanarkshire caused large fluctuations in population there. Initially, the number of people living in areas such as Carstairs increased due to an influx of railway workers and their families around the once important junction. Eventually, in some places the improved transport links caused a population decrease as people from the local communities became aware of the larger towns and cities nearby, with their thriving markets and new lifestyle. Places such as Thankerton suffered a decrease in population as the local tradespeople were usurped by the cheaper and more varied goods available in nearby Glasgow and Edinburgh. Overall, it appears that the farming communities in the area were least affected, and appear to have had the most stable populations over time.

20th Century Developments

- 2.49. The 20th century has seen the dramatic decline of Glasgow and the Clyde Valley's heavy industry. By the early 1900s, the mining of the Lanarkshire coalfields was slowing as shallow deposits in the area were 'worked out' by conventional methods. A few of the deeper pits continued to be worked until the 1990s. Evidence in the landscape for the mining industry remains in the form of many small bings and spoil heaps. The study area has a number of isolated housing schemes, particularly over parts of the central plateau where past mining communities once thrived.

- 2.50. Over the last 20 years open-cast coal mining has increased, with some large areas worked this way in North Lanarkshire in particular. This form of mining has some locally significant changes in the landscape. Peat, used for horticulture, has been extracted commercially on parts of the Central Plateau south of Cumbernauld, this too having a locally significant effect on the landscape of the plateau. In South Lanarkshire, there has been a significant impact on the landscape due to the extraction of sand and gravel. This extraction has been responsible for the removal of local archaeological sites but has enabled several archaeological discoveries. This type of landscape modification is evident in areas around the Tinto Hills, where sand and gravel extraction continues to eat into the glacial River Clyde's water-lain deposits and in the valley of the upper River Avon near Drumclog.
- 2.51. Shipbuilding and steel making, core industries of the conurbation, struggled to survive after the Second World War. The major steelworks all closed during the 1980s and early 1990s, and the Clyde now has only two working shipyards. The towers of the Ravenscraig Steelworks by Motherwell were a significant feature of the landscape until they were removed in the mid-1990s. The quays, sheds and cranes (such as at Finnieston Quay) of the Clyde in Glasgow remain in places as landmark reminders of Glasgow's shipbuilding past.
- 2.52. Farming has become more specialised during the 20th century, particularly in dairying, potatoes and sheep farming, and more land has been given over to grazing. The use of fertilizers has increased and the greater numbers of stock require the importation of feedstuffs, silage making and longer rotations under grass. This has introduced silage towers as fairly common features of the rural landscape and has generally diminished the diversity of the agricultural scene. Dairying operations have changed; cheese is now rarely produced on farms and the keeping of small dairy-fed pigs and poultry is rare; consequently, many traditional buildings have become redundant.
- 2.53. This century has seen the break up of most of the great estates, followed by the decline of mansion houses and their designed landscapes, e.g. Allanton House and grounds near Motherwell, and Hamilton Palace and grounds by Hamilton. Several mansion houses have been converted to new uses as hotels, museums or apartment accommodation. The loss of estate control through the sale of land to several former tenants has allowed differences in management approach to become evident, e.g. upkeep of hedgerows and decline of policy and shelterbelt woodland.
- 2.54. In 1919, the Forestry Commission was established with a remit to build up the UK's strategic reserves of timber. The Forestry Commission purchased large areas of uplands and estate forests and pursued a policy of maximum timber production. As a result, large Sitka-spruce dominated forests have been created in the Southern Uplands hills bounding the study area with Ayrshire, parts of the central plateau and the Campsie Fells. Forestry in the study area has increased steadily during this century, generally on the foothills and plateau areas of the area. There is relatively little forestry within the lowlands around the conurbation.
- 2.55. Recent changes in forestry and woodlands are discussed in greater detail in Chapter 4.
- 2.56. In general, the conurbation has grown during the 20th century, often at the expense of the surrounding countryside and remoter settlements. The great numbers of people living in the conurbation, increased car ownership and individual mobility since the war have been instrumental in creating the demand for a road building/improvement

programme. The study area has many important arterial roads, the M74/A74, M8, A77, M80/A80 and A82 being some of the biggest. The increased mobility provided by the car has created commuter demands for development in the countryside at the edges of the conurbation. Many of these issues represent continuing forces for change affecting the landscape of the study area and are described in more detail in Chapter 5.