

M74 COMPLETION

CULTURAL HERITAGE EVALUATION: PHASE II

Part 1: Research Context



PROJECT 1600

carried out
on behalf of
Glasgow City Council

GUARD
Glasgow University Archaeological Research Division

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This volume is the first in a series of 4 parts.

Part 2 Public Archaeology
Part 3 Project Management
Part 4 Site-by-Site Mitigation Proposals

Cover Plate:

Children by a midden in a Gorbals tenement back-lot, 1912.

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Part 1: Research Context

PROJECT 1600

by

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This document has been prepared in accordance with GUARD standard operating procedures.

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GUARD

1.0 Introduction

This report has been commissioned by Glasgow City Council and follows on from the first phase of the M74 Completion Cultural Heritage Evaluation, undertaken in 2002 (GUARD 2003). The present, phase II report has been written following the refinement of the 2002 list of sites and buildings potentially impacted by the motorway, and is the first part in a series of five.

The report provides background discussion leading to a proposed research framework for any further phases of archaeological work. It also provides a general methodology statement in order to ensure a level of consistency and compatibility in excavation, recording, and other works across the various sites. The scale of the cultural heritage component of the M74 programme makes the formulation of such a research framework and general methodology advisable, to achieve best value and realise the fullest potential of the archaeological resource (for an example of a similar approach of the Cypress/West Oakland Historical Archaeology Project, USA; <http://www.somoma.edu/asc/ongoingprojects/cypress.htm>).

The current list of potentially affected sites includes a wide range of industrial, transport, and domestic buildings, sites, and features. Standing building survey is proposed for a cotton mill, an engineering works, a tenement, a waterproof cloth works, a football ground, a drill hall, and one other industrial premises. Excavations are proposed at industrial sites including six foundry/engineering works, a rivet works, a van and lorry works, a cotton mill, two workshops, a warehouse, a cabinet works, a biscuit factory, a lifebuoy works, a limeworks, a pottery, and a brick and architectural ceramics works. Transport features proposed for excavation include a canal terminal, a railway carriage shed, and an engine shed. Domestic sites proposed for excavation include 10 tenement blocks, five townhouses or villas, the sites of two country houses (at one of which only the garden will be affected), and a workers' row. Excavations are also proposed at the site of a public house, and several other public house occur within the tenement sites. Photographic surveys are proposed for four engineering works, a copper works, a rope works, a former municipal power plant, a cabinet works, a chemical works, a goods station and a goods yard, a parcel station, and one other factory.

Individually, many of these sites have great potential for our understanding of the recent historic past. But together they have added significance for their group value. There is a general value to the whole group, allowing investigation not just of one industry or one short period in history, but giving a more comprehensive view of industrial society, where working life might be compared to domestic life, one industry with another, and so on. Within this, several distinct groups emerge that allow consideration of specific aspects of the recent past. Some of these groups are buildings and sites relating to a single business. For example, there are the Dixon enterprises relating to the famous Dixon industrial dynasty, and including an iron foundry, workers' row, railway, and William Dixon's house itself. The Falfield cotton mill site not only has an impressive range of standing buildings, but the probable site of the mill manager's house lies adjacent. Other groups of buildings and sites relate to a particular industrial sector. For instance, the foundry/engineering sector is well represented with some level of excavation proposed at six separate sites, a standing building survey proposed at another, and photographic surveys at four more. This group value presents an opportunity to understand technologies, working practices, and the work environment within individual industrial sectors in unprecedented detail, comparing larger and smaller concerns, the well known with the less well known, and contrasting firms producing a variety of different products and operating at different times. The domestic sites also have great potential as a result of their existence as a group. Such sites range from a row of workers' cottages, through small tenements to Alexander 'Greek' Thomson's Queen's Park Terrace, a range of suburban villas, and the occasional large country house. A relatively representative profile of the day-to-day domestic environment of the population is thus provided.

The various parts of this Phase II report address the potential of these groups of sites for our historical understanding, both in terms of the history of modern Glasgow and Scotland and in terms of wider, global industrial and urban history. Work to date has suggested that the M74 Completion project provides an opportunity for archaeological investigations with great potential significance. The realisation of this potential is addressed below through the research framework and general methodology statement, and is considered in further, practical detail in subsequent parts.

This report is organised into five main sections. The first (section 2) expands on section 4 of the Phase I report: *Assigning significance value and defining impact* (GUARD 2003, 24-28). It gives a detailed consideration of legislation and policy, primarily construed here as useful general guidance in

establishing the means of assessing the significance of each site and building. The criteria and guidance for assessing significance identified in section 2 provide the basis for the individual site-by-site significance statements in volume 2 of the report, and section 2 below should be referred to where the basis of an individual significance statement requires further contextualisation.

Section 3 discusses, in brief, the current state of the disciplines of urban and industrial archaeology in Scotland. This is with a view to identifying, more specifically, which categories of remains have recognised potential, in general terms, for our historical understanding. This provides a guide in assessing the significance of the sites specific to the M74. However, it is also contended below that there are significant categories of remains that are not currently recognised by the relevant disciplines in Scotland. When we place Scotland in the wider context of historical archaeology elsewhere in the UK and across the world, it becomes clear that a variety of additional types of remains and historical questions require consideration.

Section 4 appraises the main historical sources for the recent past in Scotland, and Glasgow in particular. The value of these sources is recognised and established, but they are also subject to specific limitations. An understanding of the limitations of the historical resource is useful here as it militates against the misconception that archaeology has no role to play in furthering understanding of the recent past. It also identifies several key areas where the archives are particularly deficient and where archaeology might make its greatest contribution.

Section 5 follows on to explore these potentially significant archaeological contributions by entering into a detailed discussion of previous work in industrial and recent period urban archaeology. In the case of industrial archaeology, which is the more established of the two sub-disciplines in this country, numerous examples are drawn from the UK, although these are enhanced by discussion of previous work abroad. In the case of urban archaeology, most of the examples are drawn from outwith the UK, which is a function of the greater level of previous work abroad. Recent period historical archaeology, relating to the period from the eighteenth century to the present, is an emergent subject in the UK, but it is well-developed in a number of countries, notably Australia, New Zealand, and South Africa, and the USA, Canada, and the Caribbean. The subject also has a growing profile in parts of South and Central America, Africa, Europe, and the Middle East and examples can be found in many other places. Section 5 largely refers to work in the USA, where urban archaeological work is relatively well developed and well published (and this is also the international material with which the author is most familiar). But this is not to deny that any industrial and urban work undertaken in Scotland exists in a subject area, global historical archaeology, that has relevance throughout many of the countries listed above. The primary aim of section 5 is to refine the general statement that recent-period archaeology has value and build on section 4 by identifying some of the major themes that have been addressed in previous archaeological work.

Section 6 takes the findings of the previous sections and details a recommended research framework and methodology statement for future phases of archaeological work in relation to the M74 Completion. This sets out broad research themes, with supplementary primary research questions, and a series of key methodological principles.

2.0 Policy Background

2.1 Introduction

The aim of this section is to expand upon section 4.0, *Assigning Significance Value and Defining Impact*, of the initial M74 Completion cultural heritage evaluation (GUARD 2003 volume 1, 23-27). The definition of significance is a necessary starting point in determining an archaeological research agenda for the M74 Completion programme, in identifying the particular sites and buildings requiring mitigation and the specific character of that mitigation. The detailed but general discussion of significance given below forms the basis of the site-by-site assignment of significance for the M74 route.

The definition of significance will be discussed with reference to general planning policy guidance and to policy statements specifically relevant to the industrial and urban archaeological and architectural resource. While many of these policy statements have been produced for use in the planning process, they serve here as a guide to current best practice in the definition of significance and the formulation of an appropriate archaeological mitigation.

2.2 *The Significance of the Historic Environment*

The appropriate treatment of the historic environment is set out in a number of government policy statements and other sources, primarily including: *National Planning Policy Guideline 5 and 18* (The Scottish Office 1994a; Scottish Executive 1999); *Planning Advice Note 42– the Planning Process and Scheduled Monument Procedures* (The Scottish Office 1994b); and, the *Memorandum of guidance on listed buildings and conservation areas* (Historic Scotland 1998).

While these documents are primarily aimed at planning authorities, they contain information and advice that is also of relevance to government departments (Historic Scotland & the Scottish Office 1995, para 1.3). For this reason, these sources and others will be referred to here in discussing the definition of significance and the related formulation of an appropriate mitigation strategy.

An important general point made in a number of statements is that potentially significant built and archaeological remains derive from all periods of our past. In the *Stirling Charter*, the ‘remains of the past bear testimony to all aspects of human endeavour from early prehistory through to modern times’ and the conservation of Scotland’s built heritage should ‘be founded on full awareness and consideration of its cultural significance and all phases of its development’ (Historic Scotland 2000, 1, 4). The historic environment is constituted by remains resulting from human activity of all periods (Historic Scotland 2002, 8). Importantly, it is also recognised that the scope of the historic environment can change and expand: ‘underlying concepts of what is important develop and change. New environments are created and become historic in time’ (Historic Scotland 2002, 16).

The historic environment also takes diverse material forms. It includes historic buildings and townscapes, parks and gardens, designed landscapes, ancient monuments, archaeological sites and landscapes, the wider setting of all these features and areas, and places important for their historic associations (Scottish Executive 1999, para 1). This heritage includes both formally designated elements (such as listed buildings, scheduled ancient monuments, conservation areas, historic parks, gardens, and designed landscapes) and significant buildings, townscapes, landscapes, and other elements not subject to such formal designation (Scottish Executive 1999, para 6).

The key significance of the historic environment, in general terms and in the present context, is that it is a finite and non-renewable resource that contributes to our understanding of both the present and the past (Scottish Executive 1999, paras 5, 20). A proper understanding of Scotland’s history, culture, and place at the present time and within the international scheme of things depends on the interpretation and the continuing re-interpretation of the ‘raw material of history’ (Historic Scotland & the Scottish Office 1995, para 2.1.3). Even for the most recent past, where original written material is relatively abundant and clearly of importance, it is recognised that it is never possible to understand Scotland’s history by reference to this written material alone (Historic Scotland & the Scottish Office 1995, para 2.1.3).

Given the above, the starting point in defining the research aims and mitigation strategy for the M74 should be that the built and archaeological heritage, in all its diversity and of all periods up to and including the most recent past, should be considered as potentially significant to our understanding of both the past and present. Of course, not all remains are of equal significance and the appropriate strategy will vary from case to case. As a prelude to the assessment of significance and mitigation on a site-by-site basis in volume two of this report, the following sections discuss the definition of significance in general terms and for different elements of the built heritage.

2.2.1 *The Significance and Treatment of Archaeological Remains (including unlisted buildings)*

As discussed in the previous cultural heritage evaluation report, for the purposes of the M74 evaluation unlisted buildings of historic significance have been assigned significance using archaeological criteria (GUARD 2003, 25). Such buildings might best be considered ‘standing archaeology’. Reference to the significance of the archaeological resource in this section, therefore, extends to such buildings. Unlisted buildings can also usefully be assessed with reference to the criteria for listing (see section 2.2.2 below).

The appropriate government guidance relating to the archaeological resource, particularly *NPPG 5* and *PAN 42* (The Scottish Office 1994a; 1994b), defines this resource in terms consistent with the general points noticed above. Archaeological remains are a finite and non-renewable resource, and should therefore be regarded as a part of the environment to be protected and managed (The Scottish Office 1994a, para 4; 1994b para 2). It is recognised that this archaeological resource is the product of human

activity from the earliest settlement of Scotland through to the twentieth century and takes many diverse forms (The Scottish Office 1994a, para 5; 1994b, para 3).

Accepting these general points, it is necessary to be able to assess significance more specifically. There are four relevant levels of significance for archaeological remains given by *NPPG 5*: national, regional, local, and lesser (The Scottish Office 1994a, paras 6, 17). The only published guidance for the assignment of significance relate specifically to assessing national importance. However, these criteria do also provide a useful reference point for the assignment of regional, local, and lesser significance. If they are relevant in assigning national importance, they must be capable of distinguishing other forms of significance also. In the present context, regional significance denotes importance in a West of Scotland context, local significance denotes importance from a Glasgow perspective, and lesser significance relates to sites whose archaeological potential remains to be established or which are very badly disturbed (GUARD 2003, 25). It should be noted, though, that sites of unknown potential may, upon further investigation, turn out to be of local, regional, or national importance.

The significance criteria for determining national importance are those advised by the Ancient Monuments Board as relevant for the purposes of scheduling under the *Ancient Monuments and Archaeological Areas Act 1979*. They are published in *PAN 42* (The Scottish Office 1994b, paras 45-48). In general terms:

A monument is of national importance if, in the view of informed opinion, it contributes or appears likely to contribute significantly to the understanding of the past. Such significance may be assessed from individual or group qualities, and may include structural or decorative features, or value as an archaeological resource.

(para 45)

In addition, the following advice is offered as a working definition:

For a monument to be regarded as of national importance it is necessary and sufficient – first, that it belong or pertain to a group or subject of study which has acknowledged importance in terms of archaeology, architectural history or history; and second, that it can be recognised as part of the national consciousness or as retaining the structural, decorative or field characteristics of its kind to a marked degree, or as offering or being likely to offer a significant archaeological resource within a group or subject of study of acknowledged importance.

(para 46)

In present terms, where the concern is with archaeological sites to be adversely affected by development and requiring appropriate mitigation in these circumstances, the key considerations in these statements are that significance can be defined as: relating to the contribution of a site to our understanding of the past; and, relative to a group or subject of study of acknowledged importance, in the view of informed opinion (cf also para 48).

From these overall criteria, eight supplementary considerations have been drawn (para 47). Although these considerations relate to the daily operation of scheduling procedures, they are useful in defining significance for other purposes such as the mitigation of development impacts (cf GUARD 2003, 25-26 for a fuller discussion in the present context):

- survival/condition.
- period.
- group value.
- rarity.
- situation.
- multi-period/single period.
- fragility/vulnerability.
- documentation.

Revised criteria and guidance for establishing national importance have recently been published for consultation (Scottish Executive Consultation CON 302). Although this new criteria and guidance has not yet been adopted, it is considered relevant here as an updated statement on the definition of significance deriving from developments both in the UK and in international regulation, treaty, and practice.

The revised guidance considers that the existing criteria are fundamentally sound, but require revision. It also considers that ‘national importance’ must now be established in relation to a regional context for most classes of monument, underlining the usefulness of ‘national’ criteria in defining the significance of ‘regional’ and other archaeological sites.

Under the proposed new criteria, for a monument or class of monuments to be nationally important they must, first, have a particular cultural significance: artistic; archaeological; architectural; historic; traditional; aesthetic; scientific; social; or spiritual value for past, present, or future generations. Such significance is embodied in the monument itself, its fabric, setting, use, associations, meanings, records, related monuments and related objects.

In addition to the criteria of multi-period/single-period, condition, and rarity mentioned above, cultural significance can be characterised by reference to:

- the technological or scientific interest of all or any part of the monument.
- the functions of the monument and its parts.
- the relationship of the monument and its parts with its wider landscape and setting.
- the historical, cultural and social influences that have affected the form and fabric of the monument, and vice versa.
- the historical content of the monument, with particular reference to the ways in which its fabric has been influenced by historical forces or has itself influenced the course of history.
- the associations the monument has with historical, traditional or artistic characters or events.
- the archaeological, scientific or other research potential of the monument.
- the formal aesthetic attributes of the monument.
- its significance in the national consciousness or to people who use or have used the monument, or descendants of such people.
- the relationship of the monument to other monuments of the same or related classes or period, or to features or monuments in the vicinity. This is particularly important where individual monuments, themselves perhaps of limited immediate significance, form an important part of a widespread but varied class. The diversity of the class should be a material consideration in making individual decisions.

The particular significance needed to define the monument as of national importance may be established in part by considering the consequences of loss of, damage to, or change to the monument, in terms of:

- its potential to make a significant addition to the understanding or appreciation of the past.
- its place in the national consciousness.
- its place, or the place of its class, in and its contribution to the modern or surviving historical landscape.
- its retaining the structural, decorative or field characteristics of its kind to a marked degree.
- the quality and extent of any documentation or association that adds to the understanding of the monument or its context.
- and, the diminution of the potential of a particular class or classes of monument to contribute to an understanding of the past.

Perhaps the most significant difference between the existing criteria and the proposed new criteria is the enhanced emphasis in the latter on less tangible aspects of cultural significance, such as historical

association or place in the national consciousness, alongside the concern for potential contribution to our understanding of the past.

Once it has been established that an archaeological site has significance, and where the *in situ* preservation of that site is not considered feasible, guidance on appropriate mitigation can be sought in *NPPG 5* and *PAN 42*. In general, in these circumstances procedures should be in place to ensure the proper recording of the archaeological resource before destruction, and subsequent analysis and publication of the results (The Scottish Office 1994a, para 4; 1994b, para 31). This provision for recording any part of the site affected applies to sites of national, regional, and local importance (The Scottish Office 1994a, para 17).

Mitigation in cases ‘involving archaeological remains of lesser significance, and sites where finds have been made in the past but no remains are known, will not always be so clear cut’ (The Scottish Office 1994a, para 17). In the present context, this statement might also be taken to refer to sites known from documentary, cartographic, or other archive sources, but where the presence of archaeological remains is yet to be established. In such instances, procedures can be implemented to ensure that reasonable access is given to a nominated archaeologist or archaeological body either to hold a watching brief during the construction period or specifically to carry out archaeological investigation and recording in the course of permitted operations on site (The Scottish Office 1994b, para 35). In this way, remains of archaeological significance discovered in the course of work can be recorded and, if necessary, subject to salvage excavation.

In all cases of the demolition or significant alteration of historic buildings, structures and streetscapes, suitable programmes of recording features that are to be destroyed are to be encouraged (Scottish Executive 1999, para 52). Important hidden features or buried remains may be revealed during the course of the works, and suitable arrangements should be made for their retention or recording (Scottish Executive 1999, para 52).

2.2.2 *The Significance and Treatment of Listed Buildings*

In contrast to archaeological remains or unlisted buildings, defining the significance of a listed building is a relatively straight-forward matter. This is because the significance of the building has already been considered in arriving at the listing category.

The assessment of the significance of historic buildings for the purposes of their statutory protection under the *Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997* is discussed in the *Memorandum of guidance on listed buildings and conservation areas* (Historic Scotland 1998). A listed building is defined as including any structure or erection and any part of a building included on the statutory list compiled or approved by Scottish Ministers, including any object or structure within its curtilage (Historic Scotland 1998, para 1.2). The listing covers both the interior and exterior of the building, but excludes any plant or machinery not ‘comprised in’ the building, although such plant or machinery falls within the scope of the listing if physically attached to the building (Historic Scotland 1998, paras 1.2, 1.3).

Historic Scotland define listed buildings with reference to three categories (Historic Scotland 1998, para 1.6):

- category A: ‘buildings of national or international importance, either architectural or historic, or fine little-altered examples of some particular period, style or building type.’
- category B: ‘buildings of regional or more than local importance, or major examples of some period, style or building type which may have been altered.’
- category C(S): ‘buildings of local importance, lesser examples of any period, style or building type, as originally constructed or altered, and simple, traditional buildings, which group well with categories A or B or are part of a planned group such as an estate or an industrial complex.’

There are four main principles of listing (Historic Scotland 1998, para 1.8):

- all buildings erected prior to 1840 which are of any quality, even if plain, and survive in anything like their original form are listed.
- buildings erected between 1840 and 1914 which are of definite quality and character either individually or as part of a group are listed.

- buildings erected between 1914 and 1945 are listed if they are good examples of the works of an important architect, or of a particular style, whether it be traditional, progressive, or international modern.
- after 1945, buildings of outstanding quality and some vintage may be listed, a very high degree of selection is exercised.

In selecting buildings particular attention is paid to the following concerns, besides age (Historic Scotland 1998, para1.8):

- the works of better known architects.
- the special value of particular building types, either for architectural or planning reasons, or as illustrating social and economic history, for example, industrial buildings both urban and rural, railway and other transport buildings, schools, hospitals, theatres, civic buildings, markets, exchanges, charitable institutions, prisons, street furniture and public memorials.
- technological innovation or virtuosity, for example, cast or wrought-iron, prefabrication, early use of concrete.
- distinctive regional variation in design and use of materials.
- significant association with well known persons or events.
- group value, especially examples of town planning, for example, squares, terraces, model villages, townscape and landscape value.

In terms of mitigation, where a listed building is to be demolished, the RCAHMS must be notified and given reasonable access to compile an archaeological and architectural record of the building (Historic Scotland 1998, para 2.55; Scottish Executive 1999, para 52). Although government departments are formally exempt from providing this notification, it is an expectation that they comply with this provision (Historic Scotland & the Scottish Office 1995, para 3.3.6; Historic Scotland 1998, para 2.76). Notification may also be appropriate in cases of significant alteration. It is considered here that an appropriate alternative would be to arrange for the recording of the building to be demolished by a suitably qualified and experienced contractor.

2.2.3 *The Significance of Setting*

Impact on the setting of a listed building is a material consideration in the planning process (Historic Scotland 1998, para 2.9; Scottish Executive 1999, para 12). Again, although this consideration is directed towards planning authorities, it serves to establish the general principle that the setting of a listed building is significant to our understanding and appreciation of its character. The consideration of setting also extends to scheduled ancient monuments, historic parks, gardens and designed landscapes, conservation areas, world heritage sites, and some features not subject to existing formal designations, such as unscheduled archaeological sites (Collcutt 1999, 498-500).

There is no full or even partial definition of setting in planning statute or guidance (Collcutt 1999, 498), but certain aspects of setting have been identified as particularly significant. As a matter of common language, the term strongly implies intent, whether original to the building in question or on the part of some later ‘setter’ placing a feature upon the setting of an original feature (Collcutt 1999, 498). However, it should be noted that this idea of setting as being confined to intentional, historic setting does not have universal acceptability. Many would consider that the setting of an important building, monument, or other feature includes not just its historic setting, but also its contemporary setting, its modern presence in the landscape or townscape, and its contribution to the aesthetic of such a landscape or townscape.

The one reasonably constant parameter in planning usage is that setting is taken to be fundamentally a visual concept (Collcutt 1999, 500). For instance, *NPPG* 18 states that the setting of a listed building particularly includes views to and from that building (Scottish Executive 1999, para 42). The *Memorandum* also considers that setting can be affected where development is visible in an important view to or from the listed building (Historic Scotland 1998, para 10.0.0). In an urban area, setting is affected if views from or to a building are obstructed, if development rises above and behind a building so that its silhouette can no longer be seen against the sky from the more familiar viewpoints, or where the construction of projecting features will be seen in oblique views of the building (Historic Scotland

1998, para 10.1.0). For setting to be a relevant consideration, the heritage feature itself must be visible at the surface (ie ‘upstanding’) in its current state and visibility of the setting elements is also a *sine qua non* if they are to constitute an element of setting (Collcutt 1999, 500-501). From the examination of past planning cases, it would appear that the minimum degree of visibility needed to trigger a consideration of setting is a matter of common sense – that is, the degree of visibility perceptible to the ‘average observer’ from a distance of at least a few metres, although increasing visibility beyond this minimum has a bearing upon the extent and weight to be given to setting (Collcutt 1999, 500-501).

When considering the boundaries of setting, it is by no means a requirement that setting should extend *a priori* to the extreme limit of visibility – perception of a visual impact may vary markedly along different axes (Collcutt 1999, 501). Common sense and professional judgement rather than the simple fact of visibility is the accepted measure of the significance of setting (Collcutt 1999, 502). Visibility is only the necessary starting point, and thereafter we must determine just what elements of relevance are visible in both the heritage feature and its setting, what relationships exist between these visible elements, and what weight or importance should be attributed to the whole (Collcutt 1999, 503). In other words, we must determine what, specifically, is special in each case (Collcutt 1999, 503).

In terms of importance, some types of setting feature will be related to the principle as a matter of more or less secure fact, but it will be more a matter of judgement in other cases (Collcutt 1999, 503). Examination of planning cases suggests that a consideration of the intrinsic importance of the principal heritage feature will, in practice, have a considerable influence over the identification of its relevant setting – as the importance of the principal heritage feature increases, so the scope (in terms of both area extent and diversity of qualities) of the relevant setting is likely to increase (Collcutt 1999, 503).

Common, specific aspects of setting identified from case precedent and heritage guidance include: intrinsic visual interest (visual qualities of the principal as seen from other points); topographic setting (visual relationship of the principal to the surrounding topography); landuse setting (visual relationship of the principal to landuse and particularly to those elements of current landuse which remain unchanged or similar to those which existed at the time of origin or use); and, group setting (visual relationship of the principal to other visible heritage features, in terms of both contemporary and diachronic (ie ‘palimpsest’) groupings or patterning) (Collcutt 1999, 504).

Because previous discussions of setting have focused on the preservation of setting as a material consideration in the planning process, there is no defined way to mitigate adverse impact on the setting of a building where the character of the development cannot be altered to reduce its impact. However, because setting is fundamentally a visual concept, it is suggested here that it is logical to recommend the mitigation of setting impact through a programme of visual recording, primarily through photographic survey. Such survey work would aim to record important views to and from the heritage feature whose setting is to be affected by development.

3.0 Current Practice in Industrial and Urban Archaeology

3.1 Introduction

A brief review of industrial and urban archaeology in Scotland is given below. This is with a view to establishing those types of recent-period historic remains currently considered, in general terms, to be of significance. Many of the sites and buildings on the M74 route do fall within categories of established significance. However, discussion will also highlight those areas where potentially significant aspects of the cultural heritage are not covered by established categories of significance. It is recognised that the mitigation of the impacts of development on such remains will require additional justification, and this will be given elsewhere in this report.

3.2 *The Current State of Industrial and Urban Archaeology in Scotland*

In general, modern elements of the historic environment are given equal weight in policy and guidance (see section 2.2 above). However, as discussed in section 2.2.1, within this general extension of the historic environment to modern remains, it is necessary to establish the specific significance of any particular heritage feature in order to determine the need for and form of a mitigation strategy. As one major criterion in assigning significance is the potential of such a site to contribute, in the light of informed opinion, to a subject of study which has acknowledged importance, it will be helpful here to briefly define and characterise the current areas of acknowledged archaeological study for the modern

period. Two main subject areas are relevant to this discussion: industrial archaeology and urban archaeology.

3.2.1 *Industrial Archaeology*

Industrial archaeology emerged in Scotland in the 1960s and 1970s, and was initially driven forward by a small group of non-archaeological professionals (Atkinson 1997, 106). The early development of the subject is most associated with a group of economic historians at the University of Strathclyde (the Royal College of Science and Technology before 1964). John Butt and Edgar Lythe are credited with recognising the usefulness of the material remains of industry in Scottish economic history and realising that material remains are a valuable resource in furthering our understanding of industrialisation, where not all of our questions can be answered from documents (Cummings and Devine 1994, x, xi). Butt and Lythe were both involved in the soon-established *Scottish Committee for Industrial Archaeology* and Butt's *Industrial Archaeology of Scotland* (1967) was an important early contribution to the field. The early development of the field is also particularly associated with Ian Donnachie and John Hume (Cummings and Devine 1994, x), and Hume's *Industrial Archaeology of Glasgow* (1974) is particularly relevant in the present context.

From the outset, industrial archaeology in Scotland was concerned with the visible remains of industry and the empirical recording and preservation of those remains. Scottish industrial archaeology emerged at a time when redevelopment, particularly in Glasgow and the West of Scotland, was removing many of the physical traces of historic industrial development (Cummings and Devine 1994, x). In this context, and considering that the documentary record of post-industrial revolution industry was not as extensive as might be assumed, Hume argued that 'without decrying the work of the excavator, the most vital task of the industrial archaeologist, particularly in urban areas, is to record extant buildings, machinery and structures before the scrap-man, the incendiary and the bulldozer come' (Hume 1974, xvii-xviii).

This early concern for recording the visible remains of industry was taken on board by the organisations and individuals who further developed the subject in the later 1970s and early 1980s. Industrial recording work undertaken by RCAHMS was, in the later 1970s, confined to architectural remains (Hay 1977). Another key body, the *Scottish Industrial Archaeology Survey*, was established in 1977, initially sponsored by the Department of the Environment (later the Scottish Development Department) and later by RCAHMS, and directed by John Hume (cf RCAHMS/SIAS 1986). Its remit was to carry out systematic surveys of significant industrial monuments, and it had compiled over 1500 records before its transfer to RCAHMS in 1985.

In this period, excavations, like those at the site of Glasgow's Delftfield Pottery or the Clyde Pottery Company in Greenock (Denholm 1977), did take place. However, the subject was dominated by the perceived heritage management need to catalogue, record, and, where possible, preserve the visible remains of industry (Atkinson 1997, 120-126). The isolation of the visible industrial heritage as a distinct and isolated thematic strand had a lot to do with the need to bring definition to the subject in focusing conservation and recording efforts (Atkinson 1997, 108).

More recently, there has been increasing recognition that this thematic restriction of the discipline, while initially useful, has acted to isolate industrial archaeology from the production of a wider understanding of past society, from the wider discipline of archaeology as a whole, and from the potential complementary insights that might come from other relevant forms of data, like 'the archaeology of stratigraphy and material culture' (Atkinson 1997, 106-108). It has been argued that industrial archaeology should open itself to wider consideration of human experience, integrate more fully with the general archaeology of the Post-Medieval-to-Modern centuries, and become a period discipline as opposed to a thematic discipline (Atkinson 1997, 111-114; Palmer 1990). Such an industrial archaeology might focus on revealing human history and experience rather than maintaining an overwhelming emphasis on novel industrial processes, those 'firsts' that are often the sole aspect of industrialisation considered, and the process of recording as an end in itself (Atkinson 1997, 114-115).

A wider remit for industrial archaeology is also now recognised in government literature. For example, PAN 42 states that 'many sites, which are not conventionally thought of as archaeological, have a great deal of information to offer: for example abandoned industrial complexes' (The Scottish Office 1994b, para3). The fact that industrial buildings can no longer be considered as isolated monuments is also recognised in reference to 'industrial landscapes', where extensive areas are influenced and characterised by archaeological features (The Scottish Office 1994b, para4). The contribution of archaeology to an understanding of the industrialisation of Scotland is one of six research themes recently identified by

Historic Scotland as being of overarching importance and requiring particular attention in their Archaeology Programme (Barclay (ed) 1997, 21). It is worth quoting their summary of the discipline at length to gain an impression of the recent expansion in the scope of the subject:

Comparatively little archaeological excavation has taken place on industrial sites in Scotland . . . Little is known of the details of structures and processes used in individual industries, particularly the metallurgical and ceramic industries. It is a priority that industrial sites, particularly of the 17th, 18th, and early 19th centuries, threatened by development should be recorded, both above ground and, where appropriate, through excavation or watching briefs Some industries, for example ceramics and mining, do not survive significantly above ground today and excavation can contribute much here. It is important that early industrial features that are little understood and poorly protected (eg bloomery mounds and clamp kilns) are investigated, the better to inform our preservation strategies. The importance of the remains of the infrastructure supporting industry should not be forgotten – transport systems (tramways, railways and canals) are little investigated as field monuments – and palaeoenvironmental studies (eg in the history of woodland management as affected by iron working) have a part to play.

(Barclay (ed) 1997, 35).

3.2.2 *Urban Archaeology*

It could be assumed that the extension of industrial archaeology to consider wider aspects of human history and experience might easily be achieved in urban areas. Surely all that is required is the integration of industrial archaeology with the established concern of urban archaeology? Unfortunately, this is not the case, as there has been a general lack of concern for the recent past in Scottish urban archaeology.

Around the same time that industrial archaeology emerged as a distinct discipline, and in the same context of development pressure on Scotland's towns and cities, the Medieval Urban Archaeology Committee of the Council of the Society of Antiquaries of Scotland produced *Scotland's medieval burghs: an archaeological heritage in danger* (Simpson 1972). This report outlined the threats to Scotland's urban archaeology and recommended a course of action to address the problem. It argued that, at that time and in light of the presumed omnipotence of the documentary record, the archaeology of towns was largely unrecognised and unrealised:

That it [archaeology] deals . . . with the more recent historical past comes as a surprise to those who have thought only in terms of written documents. But the study of the products of man's material activities – the technologies of potter, smith, mason and carpenter – also includes houses and settlements, both rural and urban, in a manner which illuminates the social life and culture of the Middle Ages in a way no documents can do.

(Simpson 1972, 5)

Scotland's medieval burghs argued that the physical evidence for our earliest towns is as much a part of our national historical record as the documents preserved in our archives (Simpson 1972, 5). Archaeology can provide a history which is 'less institutional' and focused on the 'everyday life of the ordinary folk, about which the documents say so little' (Simpson 1972, 11). This is not to say that archaeology could or should somehow replace or operate apart from documentary history, but that archaeological and historical evidence can and should be used in conjunction in studying the Medieval and modern worlds (Simpson 1972, 11).

As is clear from the title of the report, *Scotland's medieval burghs*, the focus of this emergent interest in Scottish urban archaeology was primarily on the Medieval origins of urban settlement. The period of interest begins with the foundation of the Medieval burghs from the twelfth century and seems to end around 1500, and any discussion of the eighteenth and nineteenth centuries certainly seems to concentrate on the impact of later urban development on Medieval remains or the preservation of elements of the Medieval town in the modern urban fabric (Simpson 1972, 7-10).

In the early 1970s, and partly as a result of *Scotland's medieval burghs*, Medieval urban archaeology in Scotland began to emerge as a recognised subject area. The subject flowed from 'rescue' archaeology, without which our knowledge of the Medieval towns would rely wholly on documentary sources (Barclay 1997, 10). *Scotland's medieval burghs* was not overstating the lack of concern for Medieval urban

archaeology, as there had been virtually no urban rescue work until excavations were carried out in Glasgow from 1969 and St. Andrews from around 1970 (Jones 1984, 111-114). In comparison with England, the scale of early urban rescue work in Scotland was limited in scale, until the first major urban campaign in Perth from 1975 (Jones 1984, 114-118).

Despite its limited nature, this early work was significant in establishing the viability of the subject of urban archaeology. Another significant development was the appointment of archaeologists in urban areas to oversee the concerns of archaeology in the planning process (Murray 1983, 2). The success of the excavations in Perth led to the creation of the Urban Archaeology Unit (and, later, the Scottish Urban Archaeology Trust), whose role was to provide a continuing archaeological presence in Perth and to undertake explorations in other Scottish burghs where no archaeological cover existed (Murray 1983, 2-3). The second half of the 1970s saw an increase in rescue funding and, importantly, the institution of the *Scottish Burgh Survey*. This was founded by the Inspectorate of Ancient Monuments of the Scottish Development Department in 1976, and the first surveys were undertaken by the University of Glasgow (Murray 1983, 1).

The aims of the Burgh Survey were to provide background information for further urban archaeological research and to furnish local authorities with the historical and archaeological information necessary for planning purposes (Murray 1983, 3). By 1983, 53 surveys had been published, each with the stated remit to 'attempt to identify those areas within the burghs which were developed at various periods of their history up to approximately 1800 and to locate within these areas sites which are of particular historical importance' (Murray 1983, 3-5).

Despite some concern for the Post-Medieval period, the remit established by the early surveys remained in place for subsequent editions in the series, which largely focused on the Medieval. For example, the area considered by the survey for Glasgow, published in 1990, was the 'land occupied by buildings and gardens by c 1707, immediately prior to the industrialisation and expansion of Glasgow' (Stevenson and Torrie 1990, 5). Within this, the real focus appears to be the period up to the sixteenth century (cf Stevenson and Torrie 1990, 3-4). In some cases, most notably when addressing the issue of industrial archaeology and particularly the pottery industry, consideration of the city's development does extend to the eighteenth and early nineteenth centuries (cf eg Stevenson and Torrie 1990, 205-210).

On the whole, the Medieval remit of urban archaeology remains current. A recent pamphlet, *Archaeology in Towns* (Historic Scotland 2003), is almost entirely focused on Medieval remains. In terms of Historic Scotland's Archaeology Programme, it remains possible for discussion of urban archaeology to occur entirely within the context of a discussion of 'The Medieval Burghs' and to focus solely on Medieval archaeology (Barclay 1997, 33-34).

Superficially, a greater interest in the contribution of archaeology to our understanding of Scotland's recent urban past has emerged in the last few years. Several respondents to a recent consultation questionnaire on the future of the Scottish Burgh Survey indicated a desire for the inclusion of more information on the Early Modern era and on industrial heritage (Owen, MacSween & Ritchie 2000, ix, 12-13, 26). However, this does not represent a concern for more information about the modern urban environment as a whole and appears less of an innovation when we remember that industrial archaeology is already an established concern. Urban archaeology remains essentially Medieval archaeology and consideration of the modern urban environment is generally confined to urban industry. The two subject areas, urban and industrial, have remits that barely overlap and it is primarily for this reason that there has been little integration of industrial archaeology with wider issues of social history and human experience.

3.3 *Scottish Industrial and Urban Archaeology in UK and Global Context*

Until recently, the situation in Scotland regarding industrial archaeology and recent-period urban archaeology has been mirrored by that in the UK as a whole. However, in England at least, the last 10 to 20 years have seen considerable debate on the role of archaeology in relation to the recent past. The need for a holistic archaeological approach to the past few centuries can now be considered a recognised concern in academic circles and amongst many archaeological practitioners.

Industrial archaeology in England developed with a primary concern for the monument, machinery, and empirical recording, but since the late 1980s there has been increasing criticism of this approach and calls for a wider remit for the subject, to include industrial complexes and landscapes and to cover social history and, particularly, the history of everyday life (Clark 1987; 1995; Johnson 1996, 12; Newman 2001,

3, 8; Palmer and Neaverson 1987; Palmer 1990). It has been argued that we should develop ‘industrial archaeology as archaeology’, that is as a period discipline aiming to further our understanding of industrial society rather than industry alone (Palmer 1990). Calls have also come forward for archaeologists to engage with key issues in the social history of the modern era, such as the growth and development of consumer society, where industrial archaeology and the archaeology of domestic life meet in their complementary analysis of production and consumption (Newman 2001, 3).

This growing concern to extend industrial archaeology, as a period discipline, to cover the archaeological study of modern housing and domestic life is particularly important in the present context, as this allows the creation of an urban archaeology of the recent past that places our analysis of industry in its full material, social, and historical context. As in Scotland, during its formative years, urban archaeology in other parts of the UK accorded the Post-Medieval period low priority, largely focusing on the Medieval and Roman periods (Davey 1987). With the occasional notable exception in the study of artefact assemblages, this situation continued well into the 1980s and in 1990 there remained a scarcity of excavated data for the sixteenth-to-eighteenth centuries, let alone the nineteenth (Crossley 1990, 75; Newman 2001, 135-136). However, consideration of the Post-Medieval urban resource increased from the 1980s and the subject began to reach maturity in the 1990s (Newman 2001, 136). Although little of this new work has been published to date and there has been a lack of integrated analysis and interpretation, the data collected have at least ‘tended to indicate that for all the characteristic difficulties exhibited by the Post-Medieval urban archaeological resource the lack of previous information owed more to a want of looking than to a deficit of opportunity’ (Newman 2001, 137).

The extension of the period and subject domain of urban archaeology remains incomplete and there are continuing calls for greater analysis of housing and of the most recent past in particular. Post-Medieval and industrial-era housing has, as yet, received scant attention: ‘all too often the remains – both standing and below ground – of dwellings of this period have been, and continue to be, removed, with no, or inadequate, recording’, and this despite the fact that the subject has been of increasing interest to documentary and architectural historians (Newman 2001, 73). Investigation of the modern and ‘familiar’, in particular, is still not often considered to merit archaeological conditions attached to planning permissions, with the result that ‘swathes of worthwhile archaeology are removed every year without record’ and that the most recent deposits on sites are often sacrificed under the pressures of time (Newman 2001, 137). Despite this, the work that has been done on this material, particularly in the province of artefact studies, has proved the value of recent archaeological deposits, most notably in revealing the lives of those whose presence in the documents is ephemeral, such as the poor and children (Newman 2001, 137).

Over the past few decades, then, an urban archaeology (encompassing industrial archaeology) of the Post-Medieval and modern periods has become established, and significant advances have been made in creating a wide social remit for the subject. The holistic study of the archaeology of the most recent centuries might, from this and at the very least, be considered an emergent academic and professional concern. However, if we situate the study of the most recent past in its global context, then it is possible to say that the subject is an established rather than a developing one.

There is now strong recognition amongst many scholars and professionals in the UK, North America, South Africa, Australia, and elsewhere that the historical archaeology of the recent past is a global concern (cf eg Hall 2000; Lawrence (ed) 2003; Orser 1996). It is no longer possible, in these circumstances, to consider practice in Scottish and British archaeology in isolation from developments elsewhere in the world. Connections between British and American archaeology, for example, have been recognised in recent joint conferences sponsored by the Society for Post-Medieval Archaeology and the Society for Historical Archaeology (Egan and Michael (eds) 1999). More generally, international debate and collaboration have been recognised and promoted through the recently established *International Journal of Historical Archaeology*, within the pages of the journal *Historical Archaeology*, and in the *Contributions to Global Historical Archaeology* monograph series, to which a Scottish volume has recently been added (Dalglish 2003).

The specific ways in which modern urban archaeology has developed, in global terms, will be considered further in section 5.0 below, where relevant examples illustrating the potential contribution of archaeology to our understanding of the recent urban past will be explored.

4.0 The Nature of the Historical Resource

4.1 *Introduction*

Despite an increasing amount of archaeological work on the recent past and the growing recognition that archaeology has a significant role in furthering our understanding of that past, there remains a misconception amongst many archaeologists about the extent and character of the historical sources for this period. It is still common to encounter the assumption that the historical resource for the nineteenth and twentieth centuries is comprehensive enough to negate any possible archaeological contribution. This is a period seen by many archaeologists as ‘familiar’, understood, and the domain of the documentary historian.

It is the purpose of this section to critically appraise some of the main forms of historical material relevant to the types of historical environment encountered on the M74 route. As will be seen, the blind confidence that many archaeologists place in the archives of this period is unfounded – this level of confidence is not shared by documentary historians, who have sought to recognise and understand the partiality and bias inherent in their sources. The aim here is not to undermine the value of the historical resource, but to lay the ground for subsequent discussion regarding the potential of archaeology (in the widest sense, including standing buildings, buried structures and deposits, material culture, environmental and other data) for increasing our understanding of modern urban history. It is not possible to review all relevant archive sources in the space available here, but many of the principal sources are considered. These serve as expositional examples for the understanding of the nature of historical material in general.

4.2 *Business Archives*

The nature of a business archive depends, in part, on the context of its creation. The range and type of records likely to be held by any firm tends to be a reflection of the firm’s product (Moss and Hume 1977, 156). For example, in brewing, the operation of excise produced elaborate records and, similarly, in heavy engineering or shipbuilding the high incidence of one-off or small-batch products, repeat orders, and the request for spares had the same effect of producing extensive collections of documents. The more sophisticated and individual the product, the greater the documentation, and in an industry with simple products only those records required by law tend to be found, and sometimes not even those.

Even within industries, the practice of record making and keeping varies from firm to firm and is rarely continuous throughout a firm’s history (Moss & Hume 1977, 156). This is a result of the developmental history of the firm, with new accounting techniques, the growth of the business, takeovers, and changes in the range and complexity of the product resulting in the introduction of new forms of record. In the case of the takeover, the new management may have its own style, thus marking a change in the particularities of the creation and curation of records (Moss & Hume 1977, 157).

These processes affect the creation of drawing records, one of the most useful archive sources in industrial archaeology and the history of technology. The type, range and quality of technical drawings varies from one firm to another, from one period to another, and, indeed, from one draughtsman to another (Moss & Hume 1977, 160). In the early nineteenth century, design sketches were often the only drawings made, with the exact characteristics of the finished product being left to workers on the shop floor. Later in the century, with an increase in the subdivision of labour and growing complexity in the products made, fully-dimensioned drawings with detailed sketches of individual components and detailed working drawings became more common. Even now, in firms who do not make highly sophisticated products, rudimentary sketches often remain adequate (Moss & Hume 1977, 160).

The retention of technical drawings by firms is also subject to variation. Drawings are more likely to be retained where guarantee periods are long and the manufacturer, therefore, has a continuing interest in their product (Moss & Hume 1977, 162). The ability to quote for repair work relies on the availability of detailed drawings, and the more recent the drawing, the less likely it is to be discarded. However, as time passes, most firms undertake a process of weeding their archives (Moss & Hume 1977, 162).

These variations, biases, and partialities in the creation of company archives are compounded by the processes of selection that act to determine the fate of collections after they leave the company and are curated, or not, by the business archives of the universities, public repositories, or elsewhere.

Prior to the establishment of the Western Survey of the National Register of Archives (Scotland) in 1970, one of whose main tasks was to locate new sources of business records, there had been an assumption amongst business historians that certain specific firms served to represent an industrial sector (Moss & Hume 1977, 155-156). Thus, emphasis was placed on the analysis and curation of the archives of these firms to the detriment of others.

Even within the collections of individual companies, there has been a tendency to seek out and select items of topical interest while neglecting others, and so to distort the balance of the collections (Moss & Hume 1977, 156). Because the disciplines of economic and business history grew from social and economic studies, particular attention has been given to records that contain details of management decisions, especially those relating to finance and labour issues (Moss & Hume 1977, 157). As a result, general management records are commonly preserved, while technical records that are difficult for economic and business historians to handle and interpret, tend to be destroyed or at best stored separately from the other records (Moss & Hume 1977, 157).

Selection is also determined by more practical factors. For instance, selection is a function of the way in which an extant business is approached regarding its archive (Moss & Hume 1977, 157). Central management can often be unaware of the systems of documentation employed by the firm's subordinate departments, with the result that significant archives may not be identified.

Once an archive is located, its bulk is often such that some selection procedure must be adopted (Hume & Moss 1977, 157). The Western Survey operated by first discarding 'the more obvious rubbish, like vouchers, unidentified rough accounting records, and miscellaneous files on trivial subjects' and then undertaking a more detailed selection once the remainder had been sorted, ordered and relisted (Moss & Hume 1977, 158). In some cases, chronological selection criteria are employed. For example, the Western Survey opted to retain all the pre-1900 records of the John Brown Shipbuilding and Engineering Co. Ltd. Archive, except receipts for payment (Moss & Hume 1977, 158). Thereafter, selected records were discarded, though all papers relating to 'significant' contracts, such as the *Lasitania*, *Queen Mary* and *Queen Elizabeth*, were retained even if they seemed to be of little interest at the time. Subjective judgements on what is 'significant' and what is 'trivial' are thus routinely made.

This process of selection has had serious implications for our understanding of Scotland's business and industrial history, and this is particularly true in the case of technical papers. When such papers are selectively retained, the result can be that a false impression of an industry is created. The fortuitous survival of the records of one firm will tend to give rise to the mistaken assumption that it was more significant than a firm of similar magnitude with no surviving records (Moss & Hume 1977, 170-171). For instance, the preservation in bulk of the Boulton & Watt drawings has exaggerated the importance of that firm as a manufacturing enterprise (Moss & Hume 1977, 160). The fame of a particular firm is one reason for such biased selection, but there is also a temptation for the archivist to discard a group of poor quality drawings from one firm in favour of retaining a high quality group of drawings of similar products from another (Moss & Hume 1977, 160).

Until relatively recently, the use and selection of management records has generally been better understood than that of technical records (Moss & Hume 1977, 159). However, there is now a recognised need to preserve order books, drawings, photographs, catalogues and other technical records in order to understand the technical aspects of industry like the range and types of products made and the extent to which particular firms were interdependent for orders and components (Moss & Hume 1977, 159). Even with this recognition, considering the bulk of many archives, selection will continue to take place for practical reasons and arbitrary cut-off dates, such as that of 1880 recommended by the Western Survey for the preservation of technical drawings (Moss & Hume 1977, 162), will remain in use.

The history of management and technical issues, the latter largely relating to the products of industry, are served by a biased and partial archive resource that can never document all aspects of industry, even in an ideal world. But the working environment, working practices, and the processes and technologies of production are barely served at all. It is here, in particular, that the techniques of industrial archaeology have the greatest role to play.

This fact was recognised by the Western Survey in the early 1970s. Although the Survey located large quantities of business records, it considered that these remained 'only imperfect yardsticks by which to judge a particular industry or firm in the West of Scotland' (Moss & Hume 1977, 170). Even in the case of large, well-known firms, the company archive tends to contain little information on the layout of the works and its physical character (Moss & Hume 1977, 171).

In this context, and particularly with regard to the working environment and production techniques, the Survey undertook an extensive and systematic programme of photographic survey of industrial premises and plant and machinery, it made rough sketch plans, and it investigated the previous history of a firm by interviewing its staff and workforce (Moss & Hume 1977, 173).

An archaeological record of industrial premises can both supplement the records of documented firms and also provide an indication of the scale of operations and relative importance of firms with few or no records (Moss & Hume 1977, 171). Analysis of the physical remains of industry is a significant means of charting the whole development of a firm or industry from its origins to the present day, especially as traditional historical focus has been weighted to the period of the Industrial Revolution through to the later nineteenth century, obscuring later development (Moss & Hume 1977, 173).

In particular, our understanding of the working environment, work practices, and technical processes is greatly enhanced by industrial archaeology. This is not to say that these subjects are not also served by other sources, such as oral history, and this is an issue that will be explored further in a later part of this report.

4.3 *Architects' Papers*

Recognising that business archives often contain little information on the physical environment of industry, we might turn to collections of architects' papers for more information on this subject and for data relating to the domestic environment. However, while archives of architects' papers can indeed prove valuable, they are subject to similar problems of selective creation and curation.

The idea that Scottish architects' papers are worthy of preservation is a recent one, a modern phenomenon (Bailey 1996, 11; Gow 1996, 63). It was not until the founding of the National Buildings Record of Scotland in 1941, which came to form part of the National Monuments Record of Scotland from 1966, that the curation of Scottish architectural drawings began in earnest and complete collections of architects' papers were actively preserved (Bailey 1996, 11; Gow 1996, 83-84). However, even through to the early 1980s, the survival of collections was largely a matter of chance and collection practice remained opportunistic and subject to biases of perceived interest, with some architectural forms and periods seen as more worthy than others (Gow 1996, 76, 85). The sheer bulk of many archives has, again, led to the sampling of material for preservation or the discard of collections on the death of an architect (Gow 1996, 64-65).

This problem of discard became particularly acute with two waves of recession from the 1980s into the 1990s, during which many architectural practices disposed of their archives (Gow 1996, 85). In the early 1980s, a survey of architects' papers recognised that the oldest surviving records had indeed been preserved as a result of previous collection policies, but that a large number of more modern practice collections had recently been destroyed or were under threat in the climate of recession (Bailey 1996, 11). Following this, the Scottish Survey of Architectural Practices was established in 1992 to quantify, amongst other things, the extent of surviving material from firms established before 1950, and from this the foundations of a more coherent collection policy were developed (Bailey 1996, 11-12; Gow 1996, 63).

The Scottish Survey was able to draw both optimistic and pessimistic conclusions. While the majority of practice archives were incomplete, the deliberate destruction of large historic collections was rare (Bailey 1996, 15). In addition, the collections of extant firms often included drawings acquired from earlier or contemporary practices and from practices that had been taken over or inherited (Bailey 1996, 16). This said, the retention of archive material by the firms surveyed was subject to variation. The recession of the early 1990s had been felt more keenly by firms in Glasgow, Edinburgh, and the Central Belt than elsewhere (Bailey 1996, 12). Furthermore, the curation of historic material was found to vary depending on the philosophy of the firm – that is, whether it was run primarily as a business concern or primarily as an 'artistic' enterprise, with the latter more inclined to retain historical collections (Bailey 1996, 15). Because of these and other factors, survival of architects' papers in Scotland is patchy and random, and far more has been lost than preserved (Gow 1996, 86).

The case of Alexander 'Greek' Thomson illustrates this problem. Thomson is perhaps, alongside Charles Rennie Mackintosh, Glasgow's most famous architect, and is directly relevant here as his now-demolished tenement block at Queen's Park Terrace, Eglinton Street, lies on the M74 route. Considering Thomson's fame and perceived significance as an architect, we might expect that particular

effort would have been taken to curate his architectural and personal papers. In fact, the opposite has been the case.

Most of Thomson's drawings and sketches have been lost and many of his buildings have been demolished, with the result that many of his 'finest and most original creations' can now only be apprehended through photographs (Stamp 1999, 13, 16). But even these photographs are inadequate and many have been discarded, a problem compounded by the fact that few contemporary descriptions of his buildings were ever published (Stamp 1999, 16).

For most of Thomson's buildings, neither his original drawings nor any professional correspondence survives: though his office drawings seem to have survived to 1936, they seem to have been destroyed in a fire soon thereafter (Stamp 1999, 17-18). Many architectural drawings, resulting from building control petitions to the Dean of Guild Court are, of course, preserved in the Glasgow City Archives. However, few of Thomson's survive as a result of the arbitrary disposal of most of the drawings in this collection dating from before 1885 (Stamp 1999, 18). This means that knowledge of Thomson's buildings has diminished while Charles Rennie Mackintosh's work, which is generally later in date, has come to be emphasised (Stamp 1999, 18). A small number of Thomson drawings are held by the Mitchell Library, and this is now the principal archive of his work. However, this collection only contains drawings adequate to understand the evolution of one executed building, the Caledonia Road Church (Stamp 1999, 18). Other collections of Thomson material, such as those held by the Glasgow Institute of Architects or the Glasgow School of Art, seem to have been lost or mislaid (Stamp 1999, 19-20). Archives of photographic negatives relating to the Glasgow works of Thomson and a number of other architects, particularly those photographs taken by Thomas Annan, have been destroyed or damaged, though some copies have been made at various times (Stamp 1999, 21).

4.4 *Photographs and Film*

As indicated above, photographic archives, although representing a valuable resource for our understanding of the industrial-era material environment, are subject to their own biases in terms of the manner in which they were created and the history of their curation.

Perhaps the best known nineteenth century photographs illustrating the domestic life and architecture of Glasgow are those of Thomas Annan (1829-1887). Annan trained as a lithographic writer and engraver before turning his hand to photography (Stevenson 1990, 4-5). He set up his first photographic business, as a partnership, in 1855 and struck out on his own in 1857, at a time when photography was becoming a serious commercial proposition (Stevenson 1990, 5, 9). Initially, he produced popular works, including scenic views and portraits of famous men, but around 1860 he moved into the reproduction of works of art and the photography of landscapes (Stevenson 1990, 5, 10, 12). It was in these fields that he gained recognition in his own day, but today he is best known for the remarkable group of photographs he took of domestic life in Glasgow's city centre between 1868 and 1871 (Stevenson 1990, 13). The context for this work was the passing of an Act of Parliament in 1866 that empowered the City to initiate slum clearances, which came to focus on the High Street area of the town. The trustees of this civic improvement programme commissioned Annan to record living conditions in the area prior to the demolition works, and over the course of three years he produced some 30 to 35 images highlighting the crowded conditions and ramshackle architecture of the district (Maver 2000, 86n; Stevenson 1990, 13, 16).

These photographs serve to balance Annan's work on Glasgow's more celebrated Victorian architecture. However, like his record of 'Greek' Thomson's buildings, the archive of Annan's 'slum' work is far from complete or unbiased. His photographs of the closes and back streets of the old town centre are idealised (Stevenson 1990, 18). They also promote a particular impression of the district. As they were commissioned by the civic authorities to represent the deprived conditions of the old town, they were intended to serve as propaganda. The picture they present is thus a managed one, and it is a particular interpretation of everyday living conditions. The stereotypical slum environment was the perception of a particular section of society. It was a caricature promoted by the civic authorities to justify their improvement programme and one which does not fully represent the varying living standards of the day (Maver 2000, 87).

We should also recognise that Annan's photographs are limited in number, posed, and concentrate on the exteriors of buildings. Photographs of tenement life become more numerous from the later nineteenth century and into the early twentieth century, but these later images tend, likewise, to focus on the exterior and on a particular corpus of subjects. While not denying the value of this resource, it is

therefore important to recognise that it can only ever give a partial, limited, and biased appreciation of domestic life in the recent past.

For different reasons, photographic collections relating to industry are also subject to bias. Many large firms had their own photographic departments and significant numbers of photographs do exist in some business archives (Moss & Hume 1977, 163). However, these photographs were produced for specific reasons and largely focus on the products of a firm. The larger collections often contain negatives of every job, sometimes at various stages of production. These were probably produced to give an indication of the progress of manufacture to the customer where progress payments were to be made (Moss & Hume 1977, 163). Such photographs focus on the product itself and only occasionally allow a glimpse of the surrounding works. Images were also produced for publicity purposes, to display current products and demonstrate the firm's track record. Depending on the product, these images will be more or less informative in technical terms (Moss & Hume 1977, 163). With motor cars, the emphasis was on aesthetic appeal, while with machine tools it was important to focus on technical details, for example.

Photography does appear to have been used as a management tool, to record and illustrate the layout of the shops and premises, items of equipment, and methods of production (Moss & Hume 1977, 163). Occasional images of employees and of special occasions like works outings are sometimes found. However, the focus on products was dominant, and only very rare images of works premises and employees have been encountered in assessing the archives for the M74 route. Photographic records of industrial processes are all but absent.

The bias in photographic coverage resulting from the specific remit of contemporary works photography is compounded, to some extent, by the nature of photographic curation. Because of the relatively small bulk of photograph collections, there is no need to weed the archive at the time of acquisition (Moss & Hume 1977, 163). However, at a later stage, unidentified negatives of minor components are often discarded. Furthermore, negatives are fragile and will deteriorate, so their preservation depends on the production of archive prints and negative copies, which is an expensive process that is usually only justified in the case of well-used collections perceived to be of particular significance (Moss & Hume 1977, 163).

The gap created by a lack of contemporary images of works premises is partially filled by later photographs of those premises, taken with increasing frequency as the industrial environment came to be considered in heritage terms in the later twentieth century. The most significant collection here is the National Monuments Record of Scotland (Eve 1994). Originating partly as the National Buildings Record of Scotland, the NMRS was established within the RCAHMS in 1966, and the latter body continued the survey work of the Buildings Record. A major part of this survey work involves the recording of industrial sites and the collection of associated documentation, and photographs of industrial sites feature in the collections created by both the Buildings Record and the NMRS. The NMRS also incorporates the archive of the Scottish Industrial Archaeology Survey, established in 1977 and transferred to RCAHMS in 1985, as well as large numbers of images produced by active individuals. Photographs of the archaeology of transportation are also represented in collections such as the Rokeby archive, compiled between 1920 and 1968, and others. The NMRS resource is thus extensive and valuable. But there are gaps in its coverage, and it does not represent a comprehensive, complete, or consistently detailed archive.

If the industrial archaeology record of works' premises gives some additional detail on works' premises, then film archives add to our knowledge of works' processes and working life. The primary collection here is the Scottish Film Archive, established in 1976 with a remit to locate and preserve film relating to Scotland and with collections primarily composed of non-fiction material, including a significant amount relating to industrial life (McBain 1985; 1992). This archive provides a record of production processes, a visual illustration of workplace conditions across a wide range of industries, and an account of the impact of industry on the environment and on the communities from which the labour force was drawn.

One of the most significant sources of film in the archive is the industrial firm itself (McBain 1985, 53). From the 1930s, the significance of film as a method of promotion began to be recognised, and a number of major firms presented promotional films at the 1938 Empire Exhibition held in Bellahouston Park in Glasgow. From this time, the government also produced a number of documentaries on Scottish industry. Alongside professionally produced promotional material, company and personal archives sometimes also include examples of 'home movies' produced with the growing interest of a number of industrialists in cinematography as a hobby from the 1930s (McBain 1985, 54-55). For instance, these amateur films include records of production lines or particular construction projects

produced for an individual's or a company's own interest. These films also occasionally record the domestic life of the industrialist, but it was left to the professional documentary maker of the 1930s and 1940s to record the living conditions of the workforce (McBain 1985, 55). Newsreels of local subjects, like gala days and workplace outings, were also made by a number of independent cinema exhibitors and further subjects are covered in various staff training films (McBain 1985, 55-56).

As with other forms of photographic archive, film collections are subject to biases in their creation and problems of curation. Film records of Scottish industry really only become numerous from the 1930s and 1940s, and are therefore relatively late in date in the present context. Coverage also only relates to a number of specific firms and to the specific subjects chosen and interpreted by the film maker. The origins and motivations behind the creation of any extant archive are therefore not uniform (McBain 1985, 52). Beyond this, celluloid is extremely vulnerable to damage and decay through mishandling or age. The preservation of a film archive is thus 'a fight against time' to locate original footage and to copy it onto modern acetate film stock prior to its irreversible demise (McBain 1985, 52).

4.5 *Building Control Plans and Ordnance Survey Maps*

The limited coverage of collections of architects' papers is significantly extended and enhanced by other archives of plans and maps, most notably the records of the Dean of Guild Courts and the town plans of the Ordnance Survey. As previously identified, the M74 route is also covered by a series of pre-Ordnance Survey historic maps (GUARD 2003, section 2.6). However, these vary in detail and accuracy, and the earliest maps sufficiently detailed to allow a considered analysis of a site are the first edition of the Ordnance Survey in the mid nineteenth century.

Scotland's Dean of Guild Courts had Medieval origins and continued to function into the modern era. However, there was rarely complete continuity in their operation and the only court remaining in active operation in the 1860s was in Glasgow (Gray 1996, 172). By that time, many of the Courts had exercised some form of building control function for centuries. However, the Glasgow Police Act of 1862 brought a new codification to this aspect of the court's remit (Gray 1996, 172). Under the 1862 Act, all those intending to build within the burgh had first to apply for a warrant from the court, a function that was extended to reconstituted or newly formed Dean of Guild Courts throughout Scotland by the 1892 Burgh Police (Scotland) Act (Gray 1996, 173). Thus, by the 1890s, a uniform procedure for building control was established and the types of record generated by this procedure were identical across the country. In 1900, the functions of the Police Commissioners for each burgh were combined with those of the Town Council, and all Dean of Guild Courts therefore came to act as the arm of the local council administering building control legislation (Gray 1996, 173).

The 1892 Act empowered the courts to take action in cases of dangerous or ruinous buildings and to assess proposals for building work against regulations on stability, ventilation, drainage and access to light (Gray 1996, 173). It is the latter function, and the related archives that were produced, that is of particular interest here. The majority of records date to the period from the late nineteenth century onwards and relate to petitions for approval of building projects submitted to the courts by private property owners – any proposal to erect, alter or demolish a building within a burgh required the sanction of the court, and petitions, plans, and other drawings were submitted as a result (Gray 1996, 173). Exempted works included those sanctioned by the Crown or undertaken by the railway companies and the Scottish Health Board. The courts held jurisdiction over a wide range of works, including small internal alterations or sanitary improvements (Gray 1996, 174).

The documents generated by individual applications include the petitions themselves, drawings of proposals, correspondence, the resulting warrant, and a completion certificate, although the correspondence, warrant, and certificate are essentially administrative records and lack significant architectural information (Gray 1996, 174). The drawings required included plans of foundations, of each floor and of the roof, elevations and sections, and a block plan showing the size and position of the proposed building relative to adjoining streets and buildings. Drainage, the means of ventilation, and the dimensions of structural features were all to be shown and, if construction entailed engineering work, engineering drawings were also required. Petitions for demolition varied in that they only had to be accompanied by a block plan. Drawings relating to approved developments were retained by the various councils as a permanent record of proposals for which a warrant had been granted.

The drawings accompanying successful petitions to the Dean of Guild Court thus form a valuable archive relating to the architecture and development of a particular town. The drawings cover the spectrum of urban building work 'from grandiose villas and public buildings to temporary bothies' (Gray

1999, 47). They often form the only archive evidence of buildings since destroyed, particularly where these buildings were too small or insignificant to merit the preservation of related architects' records (Gray 1999, 47).

However, again, we must recognise the deficiencies of the archive. In terms of both the industrial and domestic development of a town, the surviving drawings can be relatively late in date. Even in Glasgow, where the court exercised building control functions under the 1862 Act, most of the surviving drawings relate to the period from the later nineteenth century onwards and coverage within this period is not complete. The surviving records for Glasgow include petitions from 1924 to 1928, drawings from 1873 to 1975, reports from 1887 to 1938, minutes of the court from 1605-81, 1699-1707, 1712-1908, 1909-1974, and registers from 1862 to 1975 (Gray 1996, 188). The most useful records here, the drawings, mostly date to the period after 1885 – either during or soon after the Second World War, Glasgow Corporation discarded *all* the drawings that accompanied petitions dating to before 1885, an arbitrary cut-off date selected for no known reason (Stamp 1999, 18).

The archive for Govanhill, an independent burgh until its absorption by Glasgow in 1891, is limited to the minutes of the court between 1878 and 1891 (Gray 1996, 190). For Rutherglen, the archive comprises petitions from 1846 to 1948 and 1974 to 1975, drawings from 1872 to 1914 and for 1974, warrants issued between 1872 and 1914, minutes for the years between 1872 and 1975, and registers between 1872 and 1975 (Gray 1996, 200). Even within these date ranges, the surviving archive for a given burgh will often not include detailed records for all petitions approved.

Those drawings that do survive are often detailed, but this is not to say they represent a complete record of a building and its use. The first point to note is that surviving drawings relate to the construction of a building or a significant alteration project. With the exception of the latter case, the drawings do not provide detail on the use of a building and there are many potential minor modifications that would fall outwith the remit of the court. Furthermore, as the Dean of Guild drawings were produced for a specific purpose, their detail is focused on specific subjects. For example, sanitation was a major concern of the Court, and there is relatively detailed information relating to the insertion of new toilets in tenement blocks. However, these same drawings often only show the tenement block itself in outline, depicting little or no interior detail. Wash houses or privies in the tenement back lot may be depicted in plan, but the use of the rest of the back lot is often not recorded. For industrial buildings, structural properties may be detailed in plan and elevation, but the intended or actual use of space in the interior often remains unknown. Activities taking place between buildings are also sparsely documented.

Some additional information can be derived from the Ordnance Survey town plans produced from the mid-nineteenth century. The first edition town plans are especially useful as they can predate the first building control plans by several decades. These OS plans were primarily produced to provide information for the civic authorities in relation to their concern for civic improvement and sanitation reform. They can thus contain good detail on water supply, including wells, cisterns and other features. They also provide significant detail on industrial premises, presumably because of the potential impact of these works on the urban environment or because of the need to accommodate these works in terms of services and infrastructure. It is common, therefore, to find annotation indicating the name of a particular works and the nature of the industry in operation there. Individual buildings and other features within a works are also sometimes annotated. So, at an iron foundry/engineering works, the furnaces, boiler shop, turning shop, erecting shed and other items may be indicated. However, such buildings and features are often only shown in outline and the working practices, industrial processes, and working environment of these concerns remain largely unknown. Added to this is the fact that, in Glasgow, the coverage of the town plans, especially the first edition, did not extend to all parts of the modern city. Only part of the M74 route is covered by the first edition, with coverage extending with occasional gaps from Glasgow east to Rutherglen. Even where an area is covered by all editions of the Ordnance Survey and by any other maps and plans, it should be remembered that these maps only relate to specific times in the history of a site. A site may have been surveyed in the 1850s for the first edition, but then may have seen forty years of development and change before it was surveyed again for the second edition. Even for the best mapped sites, therefore, we have only a series of 'snapshots'.

In conclusion, the maps and plans covering the M74 route are a valuable resource. However, they are subject to specific limitations in terms of the selective recording of information by the various surveyors, the lack of a comprehensive and consistent coverage (both through time and across space), the vagaries of survival and curation, and other factors. While maps and plans are thus a key historical resource, the understanding they allow of the historic environment is limited and far from complete.

4.6 *Archives and the Study of Everyday Domestic Life*

In appraising their source material, business and industrial historians have established that there is a dearth of information on the routines of industrial life: on industrial processes, on work practices and operations, and on the work environment. As briefly noted above, a similar case can be made for everyday domestic life. While aspects of architecture and town planning are reasonably well understood, and while the material certainly exists to approach such issues, routine and mundane domestic life and everyday social interaction are less well served.

There is no doubt that there is an established and significant body of documentary history dealing with domestic life and the domestic environment. This is unsurprising considering that housing constitutes one of the main themes in the historiography of modern Scotland, and particularly modern Glasgow, and has remained a central political issue from the nineteenth century through to the present (cf eg Robertson 1992; papers in Rodger (ed) 1989).

However, the corpus of historical research on the subject focuses on certain specific issues and utilises archive sources that have their own biases and limitations. This point is clear from various contributions to a recent major edited volume on Glasgow's history from 1830 to 1912 (Fraser and Maver (eds) 1996). In a chapter on 'The social problems of the city', the subject of health forms a key theme (Fraser and Maver 1996a, 352-393). Discussion here takes the form of a general analysis, and the main sources utilised are official statistics, statements from city officers, doctors, and others. From similar statistical sources and general statements we can build up a general picture of the demography of the city (Withers 1996) and we can discuss, to a degree, the likely impact of patterns of income and employment on quality of life (Rodger 1996).

A diverse range of relevant social issues has been discussed in considering the impact of industrialisation on the emerging working class (Fraser 1996). Topics here include: changes in the structure of workforce; wages and working hours; the growing spatial separation between the emerging social classes; the formation of distinct, explicitly recognised socio-economic classes themselves; and, the insecurity of employment. Discussion of the home environment covers (again in a generalised and rather stereotyped way): the emergence of distinct modern gender roles (with the home becoming the domain of women); the growth of urban neighbourhood social networks; the place of the pub in male socialising and, conversely, the emergence of the temperance movement and the ideology of self-improvement; the development of friendly societies, industrial activism, and working class political activism; general variation in the housing conditions of different groups within the working class; the formal institutions of working class social life, such as the YMCA and Boy's Brigade; the growth of sport and leisure activities; and, the nature of religious and ethnic divisions in the industrial city.

Community and family life is one area where statistical sources and generalised contemporary descriptions can be complemented by oral tradition and 'folk memory' (Fraser 1996, 322-325). Glasgow's everyday domestic and working life has its own significant oral tradition (eg Blair 1985; 1991; Clark 2003; Faley 1990). However, valuable as this additional source material is, it is also subject to the considerations that it is partial, biased, primarily relates to the period from the early twentieth century, and can never allow a comprehensive treatment. Even when utilising all the available archive sources, there must always be the caveat that: 'in writing about class, one has always to be conscious that individual life experiences, even in one locality, varied tremendously and generalisations have to be treated with caution' (Fraser 1996, 300).

Discussion on housing in the Glasgow volume mentioned above focuses on four main themes (Fraser and Maver 1996a, 363-386): the problem of supply (lack of housing stock with a growing population; housing of the wrong sort or in the wrong location); the general pattern and character of building (tenements prevailed; Glasgow became notorious for its 'single-end', one-room apartments); the problem of the cost of housing and the lack of good, but cheap accommodation; and, the state of housing (conditions in the houses themselves and in the stairs, closes and yards, and the growing concern amongst certain groups in Victorian society about the level of deprivation and the lifestyle of much of the population, characterised by poverty, vice and immorality).

Thus, a diversity of subjects are discussed and many of these have a direct bearing on our understanding of the domestic environment and domestic life. But discussion is based on official statistics and statements and analyses authored by concerned city officers and the philanthropic middle classes. These sources give a generalised and politically and socially biased view: 'Glaswegians were prone to publicise,

examine and talk about their problems with zealous intensity, and this heightened public awareness, but it also singled out the city as being particularly damned'; moral reformers sought to emphasise Glasgow's shortcomings to justify and demonstrate the effectiveness of their own solutions (Fraser and Maver 1996a, 387; cf also Fraser and Maver 1996b). Many of the archive sources were created with a focus on the depravity of working class and 'slum' housing as part of a campaign for the creation of formal mechanisms to implement a civic improvement programme and, although these sources are not entirely divorced from reality, Glasgow's domestic environment and the daily life of the city's inhabitants were undoubtedly much more diverse than these accounts suggest (Maver 2000, 85-87). In this situation, and for example, the use and experience of Scotland's tenements is less easy to reconstruct from historical sources than the architecture of their facades, especially considering that the urban society they housed has been 'turned upside down' in the twentieth century (Glendinning 2003, 117).

Archaeological analysis, in combination with a revisionist approach to the documentary resource, is one of the more significant ways to further our understanding of the mythological and stereotypical 'slum' (cf eg papers in Mayne and Murray (eds) 2001). Through such analysis, we can seek to rehabilitate the demonised Victorian 'slum' class, not by denying the evidence that exists for poverty and poor housing, environmental, and social conditions, but by tempering it with an appreciation of those other sides to domestic life that fall outwith the domain of the archive evidence.

While this is a fundamental area of future work, interpretative problems in relation to the everyday domestic environment are not confined to our understanding of the poorer working class district (Nenadic 1996). As with the working class, the Victorian middle class was far from a homogenous and easily defined group. Rather, it was a volatile and shifting collective characterised by large variations in income, lifestyle, and household composition (Nenadic 1996, 265, 267-280). What characterised the middle class as a class was the collective construction of, and aspiration towards, a series of ideals of desirable existence that encompassed material life, family, work and community, and this involved the construction of complex mythologies of family and home, gender and class relationships, economic life, and nationalism (Nenadic 1996, 266-267). The identity of Glasgow's middle class was fabulised and the middle classes built their values around a series of myths in order to accommodate the profound ambiguities that were the normal experience of family, social interaction, and economic life (Nenadic 1996, 295). The main implication of this process here is that sources detailing middle class domestic life and the middle class domestic environment cannot be considered objective descriptions. They present a certain image, an acceptable ideal, they elide variation, and they ignore conflicting evidence.

Even on the issue of housing in the twentieth century, let alone the nineteenth, historians have made clear that there are significant gaps in our knowledge and deficiencies in the archive resource. They have recognised a need for inter-disciplinary research in this area and called for space for studies that seek to balance our understanding of macro-scale processes with the peculiarities of different urban locales (Rodger 1989, 21). A pre-occupation with issues like the types of tenure in use has deflected research from other significant themes like household composition, the family and social relations, working class culture, the nature of community, and others (Rodger 1989, 21). Housing studies have over-emphasised the supply side of the equation: as the collection of statistics revolves around institutions and government agencies, then the point of departure for housing studies is too frequently the housing stock, new building, and other quantifiable variables (Rodger 1989, 21-22). British historians have largely disregarded the experiential side of housing: 'personal interaction with the built environment therefore remains under-acknowledged . . . the impact of grey stone tenements is confined to the physical, to their effect on light and ventilation, to public health . . . further attention could usefully be devoted to the interaction of resident and his/her home' (Rodger 1989, 22).

4.7 *Conclusions*

The value of the varied historical resource available for the study of industrial and urban life in Glasgow should be acknowledged. So too should the value of the established and voluminous corpus of historical analysis that has used these sources to explore a variety of significant themes.

However, documentary and other archive sources are subject to biases inherent in the contexts of their creation. They form a partial, incomplete, and biased record. These sources are also subject to processes of curation that have their own particular problems and drawbacks. Practical and interpretative decisions on what is and what is not to be curated underlie the selection of particular types of material. As we have seen, even where a particular archive is relatively complete, there will always be subjects that are 'beyond record': those routine and mundane actions and that practical knowledge that

were never considered worthy of preservation for posterity and that were unnecessary to commit to paper in the running of a business or the management of domestic life by the civic authorities. It is important to recognise the deficiencies of the historical resource and to acknowledge the scope for archaeology to contribute to established historical debate and to define and explore new areas of understanding.

5.0 The Potential of the Archaeological Resource

5.1 *Introduction*

Glasgow is not unique in the vagaries of its historical resource. The following sections discuss previous archaeological work on modern urban and industrial sites from other regions of the world with a view to providing more refined detail of the potential contribution of archaeology to our historical understanding of that period. Examples from Glasgow and Scotland have been included where possible.

It will become clear that archaeological investigation has the potential both to provide new insights and to contribute to established and fundamental themes of historical research. In relation to these historical themes, though, it should be remembered that the success of archaeological investigation relies on the setting of archaeological questions, rather than the blind pursuit of questions defined in relation to documentary sources (Connah 2003, 150). Far from being a drawback, this means that archaeology has a unique perspective. Furthermore, the questions approached by history and archaeology are not unrelated. Rather, common themes can and are approached from the standpoints of the different disciplines, which have common purpose, and neither has priority over the other (Connah 2003, 155). For clarity of discussion, the following has been divided into three main sections: the general potential of recent-period archaeology, industry and transport; and, the domestic environment.

5.2 *The General Potential of Recent-period Archaeology*

As discussed in section 4 above, even where a particular archive is relatively complete, there will always be subjects that are 'beyond record', especially where they relate to routine and mundane actions and practical rather than explicit knowledge. This point has been made particularly clear by recent, innovative studies of contemporary household refuse disposal in the United States, where documentary sources and interviews with the members of the subject households have been combined with an 'archaeological' analysis of the refuse itself (eg Rathje 2001). Even where we have access to detailed oral evidence specifically solicited in relation to this issue, archaeological analysis of household garbage has proved informative as people's explicit understanding of their own actions is regularly in conflict with their actual behaviour – there are significant differences between what people say they do and what they actually do (Rathje 2001, 64).

It is an established theme in historical archaeology that a major defining characteristic of the discipline is its unique perspective on life in the past, its ability to explore the gaps in the archives, and its power to illuminate the lives of those not represented in the historical record – points that are well-established in countries like the United States or Australia and that have gained increasing recognition in the UK in recent years:

in spite of the richness and diversity of the historical record, there are things we want to know that are not to be discovered from it. Simple people doing simple things, the normal, everyday routine of life and how these people thought about it, are not the kinds of things anyone thought worthy of noting.

(Deetz 1996 , 11)

to deny that archaeology can make a contribution towards understanding modern societies is to deny that the discipline has a role to play in understanding any society. Ultimately, it is a denial that archaeology has its own specific viewpoint

(Matthews 1999, 155)

it may appear to many that if there are recent written records then the archaeology becomes less important, but the reverse could also be argued. Written records are not complete, are subject to biases and do not deal with specific details of developments which impacted on human lives.

Historical and archaeological sources complement each other, giving different types of information or different levels of detail on the same subjects (Deetz 1996, 11). Combined they can give a fuller picture of the past. It is accepted best practice in historical archaeology to pursue analysis of all the available data in order to achieve the fullest possible understanding of the past, whether that data lies in the archive, stands above ground, is buried below it, or lies in the memory of the oral informant (Deetz 1996, 5-11).

The value of using these different forms of data together also lies in the fact that, in cases, they are in conflict and contradict each other, producing a poor fit that forces refinement of our interpretations, the setting of new questions, and the reflexive re-appraisal of both forms of evidence leading to a better understanding both of the past itself and of historical practice (Deetz 1996, 18-19, 26-27).

It is, of course, important not to ignore the particular biases in the archaeological evidence and in its analysis. But this does not detract from the fact that archaeology has a significant contribution to make to our understanding of the recent past – the archaeology of the recent past is far from being ‘an expensive way of learning what we already know’ (Deetz 1996, 33). And this is not just an argument for the value of the recent past in pure research contexts, as this is also a good reason for the proper treatment of recent-period archaeology in development contexts (Gould 1999; West 1999, 10-11).

Considering all of the above, the relative lack of archaeological work on the most recent urban past in Scotland, particularly on the subject of the domestic environment, is a serious loss to our historical understanding. This applies not just to Scotland of itself, but also to the understanding that could be derived from comparative analysis with the relatively well-developed research conducted in other industrialised countries (a point also recently made for English rural industrial workers’ housing; Casella 2004).

5.3 *Industry and Transport*

5.3.1 *Processes, Working Practices, the Work Environment, and the Social Aspects of Industry*

Referring back to section 4 above, and anticipating the discussion below, the key areas where the historical resource falls down in relation to industry and business, such as industrial processes, work practices, and the working environment, are the areas where archaeological techniques can be most valuable. This is not simply because of the lack of documentary and other archive sources relevant to these topics, it is also because archaeology is by definition concerned with the material aspects of the past. The significance of industrial archaeology also stems from the consideration that production and its correlate consumption arguably form the central poles of contemporary material life, and are, indeed, the material basis of social existence in Western society (Buchli & Lucas 2001, 21). Accepting these points, what, specifically, are the issues that industrial archaeology can address?

Archaeology can provide genuinely new information on the properties of materials and on the physics, chemistry, and metallurgy of past production processes and technologies (Cranstone 2001, 184). While the historical record tends to emphasise the role of the invention, the capitalist investor, and what was said and planned, archaeology can tell us much about the practicalities of making the invention work, highlighting practical modifications, structural adaptations, and process residues that can reveal the actual performance and efficiency of the process and ‘the dialogue between idea and practicality’ (Cranstone 2001, 210). One of the greatest contributions archaeology can make to the study of technology is to reveal how specific systems worked at a specific time and in a specific place, to understand the process rather than the scientific principle (Butterfield 1994, 198; Schuyler 1999, 67). Archaeology can also study the development of the natural environment and its reaction to the large-scale implementation of industrial processes (Cranstone 2001, 184). These two issues of the history of technology and of the environment are seen, by some, to be amongst the most important general subjects for historical archaeology, where technology should be understood in relation to practical knowledge and prevailing social attitudes (Hardesty 1999; cf also Schuyler 1999, 66-67).

Works operations can be detailed by mapping the elements of a site through excavation or survey and interpreting the location of different functions and the movement of materials from one part to another (Palmer 1990, 277). How did the works layout relate to power source and the transmission of power, and to what extent was it determined by the need for supervision of the workforce or production itself (Butterfield 1994, 204-208)? Did factors such as these constrain the development of the industry,

meaning that some new products or techniques could not be introduced? The operation of large sites in their entirety needs to be understood at least at a superficial level, but particular flows or processes within the site will require more detailed examination (Butterfield 1994, 198). It is also particularly important that we develop an understanding of the typology of industrial buildings and structures: how did these change through time; how did their form and use vary within and between industries and different regions, and for what reasons (Palmer 1991, 20)?

Putting all this together, an understanding of how different processes, operations, and structures evolved through time and varied across space can be developed and the reasons for these changes and variations understood (Palmer 1990, 279-280). We can and must also consider the labour required for different operations and processes, and the working practices that resulted (Butterfield 1994, 202). What skills were required, and what were the effects of changes in technology, not just on process efficiency but also on work practices? To what extent was the works layout dictated by specialised functions or the integration and rationalisation of functions, and where were compromises made in relation to working conditions, such as to reduce excessive noise, dust, or heat or to increase natural light (Butterfield 1994, 206-207)? Technology/processes, operations, and work practices must be considered together if we are to understand production fully (Butterfield 1994, 204).

Consideration of work practices and the working environment is vital to an understanding of industry, but it also leads into another significant facet of archaeological understanding, that is the daily lives of ordinary people (Palmer 1991, 18). Years of work in British Post-Medieval archaeology has yielded significant amounts of data, but this has not uniformly been illuminated with questions centred on people (West 1999, 1). This has also been a notable drawback to past approaches in industrial archaeology. This is not necessarily to undermine the quality of the data that has been produced, but to suggest that the research questions that can be asked of this data are potentially far more extensive, complex, and significant (West 1999, 5). One of the strengths in recent approaches to historical archaeology is their aim to produce an ethnography of everyday life (West 1999, 8).

Some of the above issues are discussed in more detail below, with reference to specific relevant cases. Discussion has been arranged in relation to two broad themes: standing buildings and excavated data. The standing building section will consider a range of industries and building types. Discussion of excavated sites largely refers to the iron working and ceramic production industries. These industries have been a particular focus in past work and are both particularly relevant to the M74. The excavation section concludes with a brief discussion of the potential value of excavating transport features, particularly canals.

5.3.2 *Industrial Standing Buildings*

In considering the need to record upstanding industrial remains, attention must be paid both to individual buildings and structures and to industrial complexes as a whole. Some years ago, there was a tendency to concentrate on the largest and most impressive structures within a complex and to assume too readily that their functions are understood, neglecting the relationship between the forms of buildings and the technologies employed within them and the relationships between buildings and structures in an operational complex (Falconer 1993, 16; Stratton & Trinder 1988, 143-144).

There has also been a tendency to focus on the uniqueness in history of technological innovation: the first iron bridge; the first water-powered cotton mill (Stratton & Trinder 1988, 144). Thus, the potential of detailed recording and analysis to provide significant insights into the routine operation of industry or less famous developments in its technology or other aspects was routinely ignored. Fortunately, less restricted analyses of industrial remains are now more usual. This said, the subject is still developing. For example, there have been several recent calls for an extension of industrial archaeology beyond the major industrial works to take in more medium and small scale industries and a greater variety of trades; in other words, for the development of an archaeology of 'craft' and the small-scale industrial concern (eg Atkinson 1994, 522; Shaw 2003; Symonds 2002, 4). These types of concern, occupying a point between domestic production and the factory proper, have received little attention, but detailed analysis of the fabric of workshops and other smaller industrial structures can be very productive (Shaw 2003, 493). The implicit and assumed chronology that underlies discussions of the division of industry into domestic, workshop, and factory scales, does little justice to the true complexity of industrial development, and underplays the fact that small concerns and workshops continued in importance (Shaw 2003, 494-495). Topics that require investigation include: fabric and setting (What is the relationship between domestic and business premises? How was the works layout adapted to confined

spaces in crowded urban back-lots?); the functional characteristics leaving material traces (What processes were in operation in the small industries? What were the requirements for the storage, transport, heating, cooling, or drying of materials? What effect did these functions have on the fabric of the workspace?); and, what working practices were employed (manual or powered equipment for working materials? How was light provided? What can we learn about human comfort in terms of ventilation and other factors?) (Shaw 2003, 496-499).

Industrial buildings and complexes vary from industry to industry, each exhibiting a range of characteristic features, and there is also variation from one region to another and through time (Watson 2003, 510). As such, the specific features of interest will vary depending on the industry. For example, in the case of engineering works and foundries (the two terms are often synonymous) we might look for: the cupola furnaces in which pig-iron was re-melted before being transferred by cranes to sand-casting beds in the foundry range; ventilation features; boilers; the erecting shop for the assembly of larger items of machinery (though some small foundries never developed covered shops); machine, turning and finishing shops; and the works smithy (Watson 2003, 529-535). Even within this industry, we should expect and seek to understand variation between different individual works. Light engineering and millwright works were often small-scale workshops situated in back courts (Watson 2003, 533).

Within a works, the recording and analysis of industrial buildings and structures needs to contend with a broad range of construction features that can contain evidence of the operation of the industry. Amongst the more common are: particular forms of wall and floor; power supply and transmission; chimneys (related to the efficiency of engines and boilers); boilers; ventilation; artificial light; sanitation; hoists, lifts and cranes; elements of factory discipline (eg bell and clock towers); offices/managerial accommodation; and, on occasion, social facilities and schools (Watson 2003, 510-529). Again, the features of interest will vary from industry to industry and even within the industry. For example, cotton mills were normally of fireproof construction after about 1840, but wooden floors are still to be found in many buildings after that date (Watson 2003, 535). The scale of production in the weaving industry could vary anywhere between the large weaving factory and the domestic loom, and differences in factory architecture can relate to the use of different loom types (Watson 2003, 536). The means of power transmission and the varying requirements for natural light in a textile works could also affect factory architecture (Watson 2003, 537).

Textile mills have been a subject of particular focus in industrial history and archaeology in the UK, and mill buildings have provided significant historical insights. The RCAHMS survey of Houldsworth's Cotton Mill in Glasgow is a pertinent example (Hay 1974). Built in 1804-5 with fireproof construction, this mill was the subject of detailed recording prior to demolition. Contrary to prior perception, the structure of the building was not homogenous and the iron-frame fireproof construction did not run from end to end. When total access was obtained from the interior, two separate building phases were identified, along with subsequent modifications. Only the original part of the building proved to be of fireproof construction, and a major addition of the mid nineteenth century was not. This fact had been disguised by the creation of a uniform brick façade. In detailed recording, evidence was recovered of early improvements to the fireproof section, undertaken soon after the original build. The central heating system, which harnessed the steam power used in the factory, was also recorded and it was found that the structural columns had conveyed the steam upwards from floor to floor.

The detailed specification of the building allowed its comparison with other examples throughout the UK, establishing that Houldsworth's was, at the time, one of the largest of its type in Britain. Comparison with similar mills allowed the technical refinements at Houldsworth's to be placed in a general scheme of development, and it was placed at an intermediate stage between several other early examples. The central heating system was not unique, but it did still represent a pioneering example of its type. In UK terms, the survey data suggested that the mill was one of the most advanced fire-proof structures of its time and demonstrated that the firm was conversant with wider trends in the development of factory design.

Fireproof construction in textile mills is a long-standing area of interest, and site survey work has provided significant detail on this aspect of structural development (eg Falconer 1993; Fitzgerald 1988). In the case of the fireproof mill, 'all the recently discovered examples have contributed significantly to our knowledge of the origins, design and construction' of this form, which is a result of the lack of reliable and relevant contemporary sources (Falconer 1993, 26). Such work has identified many cases where the fabric of the building was determined by functional requirements, but has also recognised many variations to this process. The use of fireproof construction is often limited to certain parts of a

mill complex, as at Houldsworth's in Glasgow, and this may be due to the greater expense of that form of construction, which may only have been used in particularly vulnerable areas or those parts of the mill housing expensive machinery (Falconer 1993, 16). Even this logic is not found across the board, and many cases of an initial enthusiasm for technologically innovative buildings, but subsequent loss of interest, have been identified (Falconer 1993, 16; Giles & Goodall 1986, 76). It is only after a number of detailed surveys have been carried out in a given region, as has been done in areas like Manchester or Yorkshire, that the various factors influencing construction forms can be identified (Falconer 1993, 16).

Building surveys have also added greatly to our understanding of power transmission. Some types of transmission seem to have been more common than the literature suggests, and surveys have detailed a variety of complex and very individual systems (Falconer 1993, 21). Alterations or additions to power transmission systems are also fairly easy to detect as they necessitate structural work which breaks the rhythm of the building and disrupts the fabric (Falconer 1993, 24).

Building up a database of detailed survey work also allows broader technological questions to be addressed, such as the diffusion of industrial technologies. For example, a technological development axis, which achieved its own independent momentum, has been identified between Manchester and Glasgow (Falconer 1993, 24). A similar link has been identified between the textile industries of Lancashire and Twente in the Netherlands (Stenvert 1999). Historical sources suggest that the former area exported expertise, machinery, and yarn to the latter, but architectural information in the two areas has added to the story. Initially, it seems that local architect-entrepreneurs in Twente designed most of the industry's buildings, but Lancashire architects were employed in the cases of large spinning mills and integrated mills with weaving sheds. With the advent of better fireproof reinforced concrete mills, the Lancashire influence faded fast as local architects came to dominate all areas of the industry.

The number of examples from textile works could be multiplied (for another Scottish example cf Watson 1988). But beyond the mill, many other forms of building are equally productive of insight. For example, detailed analysis of a nineteenth century warehouse in Liverpool has revealed considerable information about the methods of its construction, the materials used, its operation, and much beside (Greene 1995). Information was gathered on the timber used in construction, including on various marks on the wood which appear to relate to the quality, source, and size of the timbers and the merchant who supplied them, and this in turn allows discussion of the trade in building materials (Greene 1995, 119-122). Building recording can also elucidate the operation of the building: the lighting system (gas in this case); storage management and health and safety (with numbered storage bays and traces of instruction and warning signs and legends); changes in operational practices through time (including changes to the warehouse lifting apparatus soon after the building was completed); machinery layout (implied, for example, by scratch marks indicating a former flywheel); and, the expansion of warehouse capacity by the introduction of mezzanine floors (Greene 1995, 124-125). Putting all of this detail together with the results of excavations outwith the building that identified and characterise engine sites related to the operation of the warehouse, it seems that the warehouse operators were caught unaware by the rapid success of the venture and had to improvise adaptations to the premises within a short time of its construction (Greene 1995, 125).

Recent work in Sheffield has taken the analysis of works operation one step further by considering human participation in the Sheffield cutlery industry through analysis of day-to-day working practices and the location, layout, and use of workshops (Symonds 2002, 2). Through understanding of the processes of manufacture and from examination of relevant buildings, the lived experience of the industry has been approached, and this work has identified highly localised social structures and the persistence of customary working practices as significant forces shaping the development of the trade (Symonds 2002, 2). For example, and extracting one element from a detailed analysis, variation in room size seems to have reflected variation in the number of processes carried out (Symonds 2002, 99-100). Workspace area does not appear to have changed between 1750 and 1900, suggesting a degree of continuity in practice, and this static room size indicates the continued independence of individual craftsmen, even in the larger works. The demonstration of this continuing independence and the continuing value placed on craft skills is particularly interesting when compared to the master narrative developed in labour history, which focuses on the de-skilling and close control of industrial workers that is associated with mechanisation of the workplace (cf Symonds 2002, 6).

5.3.3 *Excavated Industrial Sites*

Many of the questions addressed to industrial standing buildings, on processes, work practices, and the working environment, can also usefully be addressed through rigorously conducted archaeological excavation and post-excavation analysis. The iron working and pottery industries have formed a particular focus of past excavation interest and are also of direct interest in the present context. For these reasons, discussion here will focus on these two industries.

In terms of processes, iron-working furnaces are an obvious excavation target and often yield complex new information. Excavations at the Madeley Wood or 'Bedlam' works, Ironbridge, Telford (1757/8–ca 1840) analysed the structure of the furnaces, establishing their type and date, charted alterations and additions, detailed their bellowing arrangements, and recovered evidence of the pumping machinery used to drive the bellows (Smith 1979, 25). One of the furnaces had the remains of its last charge still *in situ* (Smith 1979, 25).

Furnace slags are among the most ubiquitous of iron industry by-products, and their chemical characteristics can be analysed and evaluated for information on a variety of aspects of the furnace process, including slag fusibility, fluidity, optimum composition, and desulphurising capacity (White 1980). In addition, the visible attributes of slags, such as colour, texture and porosity, can provide information as to their use, firing temperature, and effectiveness (White 1980). The effectiveness of the slag, how well it performed its function in purifying the iron, is a primary indicator of the efficiency, or not, of the furnace operation and the iron-making process (White 1980, 55). Many historic slags seem to fall short of the modern scientific ideal of performance in at least one or two areas (White 1980, 60). However, placing the slags in context with other aspects of the process provides a more relevant assessment of their function. For example, in charcoal-fuelled furnaces, good desulphurising properties in the slag are not relevant, and, in addition, high grade ore does not require an optimum slag composition (White 1980, 63).

Beyond the furnaces, excavation can also prove extremely informative on the layout and operation of the works as a whole. At the Bersham Ironworks in Clwyd (1717–1812), the layout of the works was given on a plan of 1763 (Grenter 1992). However, this plan showed little detail and did not preclude excavation. Remains of two eighteenth century buildings were recovered (Grenter 1992, 181-184). These were drawn in 1763, apparently with some accuracy in terms of their plan layout, but without any of the detail that was subsequently derived through excavation. The furnaces were located and analysed, and structural features in another area of the site indicated a blowing house, water-powered bellows, two coking ovens (neither shown on the 1763 plan, and one of which was of unusual type), a wagon way, and other features (Grenter 1992, 185-188). Two main structural phases were identified, the second of which involved a dramatic remodelling (Grenter 1992, 191). Reference to historical sources gave this remodelling context, as it coincided with a significant expansion in the demand for cannon during the American War of Independence.

The value of this type of extensive excavation is not confined to the early history of industrial iron working. To take a recent example, large-scale excavations have been conducted at the St. Helens Iron Foundry, which was in continuous production from 1798 to 1939 (Hedley & Scott 1999). This works had an international reputation for the casting and construction of steam pumping and winding engines for the mining industry, and reasonable cartographic evidence suggested that its layout was constant from 1849 until its closure (Hedley & Scott 1999, 55). However, the excavations still provided valuable information on both the individual processes undertaken, the operation of the works as a complex, and its changing character through time. The surviving walls and refractory-lined flue structures of a former smithy were identified and samples of vitrified residues taken, with subsequent SEM analysis indicating that they were most probably generated by cupola furnaces (Hedley & Scott 1999, 55). Prior to excavation, it had been assumed that the main casting (moulding) shops would be the primary target for evidence of such furnaces.

Four main phases were identified in the area excavated. Phase 2 witnessed the construction of the smithy, which was originally divided into two rooms (Hedley & Scott 1999, 56-57). The southern room had a series of plinths indicating working areas for the initial processing of wrought iron emerging from an adjacent reverberatory furnace. A gully along the sides of the building probably channelled waste molten metal. In the northern room, large blocks in the floor are thought to have related to the building's columns, and further machine plinths and two substantial machine mountings were also found. The latter probably related to a travelling crane system. For phase 3, the remains of a cupola furnace were identified in the northern room, the size and character of this indicating its specific type, and the reverberatory furnace was converted to a bubble pit, controlling the ignition of gas in the furnace

(Hedley & Scott 1999, 57-58). Fragmentary remains of further buildings were found to the west of this furnace, along with the remains of a tramway. The excavations confirmed the locations of a range of ancillary structures associated with the foundry, including the main casting shops. Further excavation of these features would provide more evidence on the types of iron-working technology employed (Hedley & Scott 1999, 58).

Documentary evidence suggests that the foundry was a centre for the production of cast iron, but evidence of wrought-iron working was identified in the excavations (Hedley & Scott 1999, 58). The reverberatory furnace would have been used to convert cast to wrought iron by decarburisation. The blooms produced in this process would then require hammering and working, and the plinths in the southern room are probably related to this activity. From the types of product identified in the documentary record, rolling and slitting mills would have been required, and these may be indicated by the northern room's machine mountings.

These excavations in St. Helens represent a significant recent development in the archaeological study of the iron industry, in that they have targeted a foundry/engineering site as opposed to a primary smelting site (Cranstone 2001, 197). The centrality of the iron industry to industrialisation means that the subject has received a high level of archaeological and historical attention, but most of this attention has been directed towards smelting as opposed to mining and iron-working operations (Cranstone 2001, 186; English Heritage 2001, 4). Focus has thus been on the conversion of the raw material, at the expense of understanding the operations resulting in the end products of the industry, whether these took place in the engineering works or local smithy (Cranstone 2001, 197). The introduction of innovations has also received much more attention than the less-documented development and spread of evolving technologies (Cranstone 2001, 186). There is thus a great need for further investigation of the often poorly-documented engineering works, and the even less-documented urban workshop, especially as the iron industry has tended not to leave a legacy of conservable buildings in the same way as, say, the textile industry (Cranstone 2001, 196-197).

The archaeology of the end-product processes of the iron industry is greatly aided by archaeometallurgical techniques applied to artefacts and waste products recovered through excavation.

Alongside the analysis of slag (see above), hammerscale can be informative (Starley 1995a). Flake hammerscale comprises small (typically 1-3 mm) 'fish-scale' like fragments of the oxide/silicate skin dislodged by mechanical or thermal shock in the process of iron forging. Spheroidal hammerscale, or slag spheres, are the solidified droplets of liquid slag expelled from within the iron during hot working, particularly when two components are welded together, but also during primary smithing of the bloom into bar or billet. Both types generally survive well in archaeological deposits and can be recovered from soil samples. They are diagnostic of specific processes and their spatial distribution can help to locate working activity precisely, as they will concentrate in the vicinity of features like smithing hearths or anvils.

Metal artefacts, whether from a production site or elsewhere, can be analysed in a variety of ways. Microscopy can reveal the crystal structure of the metal, and allow an assessment of alloy type, metal quality, the mechanical and heat-treatment history of the object, and its suitability for particular applications (Starley 1995b). The composition of artefacts can also be determined by chemical analysis (Mortimer 1995). Some types of analysis are quantitative and provide precise information about artefact composition, while others give qualitative results, identifying the main elements or compounds present and providing a rough idea of their relative concentrations. The metal can be identified, as can the specific processes carried out, and the provenance of the object or material can be established.

In addition to other techniques, such as X-radiography (Fell 1995), the visual analysis of products can also be informative on production technologies. A Scottish example is the analysis of bolts (Harvey 1977; 1985). If the nut on a bolt is in place, it can be removed to reveal sound threads, and analysis of the threads can point to the process of manufacture. Under magnification, the threads can be measured accurately and their form and shape studied. Slices through the bolt can also be examined, and treatment with acid can reveal slag lines and thus inform on the welding process.

Such analysis has established that perceived inferior types of thread continued to be produced, despite the advocacy of improved forms by James Watt and others in the contemporary literature (Harvey 1985, 130). While a level of production standardisation does seem to have arisen with industrialisation, smaller workshops seem to have resisted this and continued the production of traditional forms (Harvey 1985, 130-131). One of the more unexpected results of analysis is that bolts with welded heads were still

being used to secure machine parts in the late nineteenth century, despite the long-standing knowledge that these bolts were not a secure form (Harvey 1985, 145). This said, and despite the fact that pull tests did show that these bolts had a low efficiency, there is little evidence of bolt heads being torn off in use, suggesting they continued in production as they performed adequately for the purposes required (Harvey 1985, 146). The bolt manufacturing techniques identified were also particularly labour intensive and this raises questions about the operation of bolt manufacturing firms: how were large orders serviced? did factories put out work to the domestic system? Or, did this manner of bolt production represent a bottleneck in the engineering industry, restricting certain aspects of production (Harvey 1985, 150)?

The scientific analysis of such products can also inform interpretation of non-industrial sites. Nails can prove extremely useful in dating domestic and other sites, but more detail is required to differentiate one form from another (Adams 2002). Nail typologies can be constructed, as each of the evolving methods of nail manufacture leaves readily identifiable features indicative of the technology employed (Wells 1998, 96). Furthermore, it may be that the metallurgical analysis of British and American nails can distinguish the two, which will aid in the dating of sites in the USA, as certain types of nails were imported from Britain earlier than they were produced in America (Adams 2002, 85).

Many of the points made above about the value of excavating industrial sites are equally applicable to the ceramic industries. The excavation of pottery sites is one area where Glasgow has seen an amount of past work, though to varying degrees of intensity. Excavations and watching briefs on the Broomielaw, particularly near the site of Glasgow's first industrial pottery, the Delftfield, have recovered sizeable amounts of ceramic wasters and saggars and other kiln furniture (Baker 1995; Denholm 1982; McCullagh 1997). Similar work has been undertaken on the site of the Verreville pottery in Finnieston, producing an important collection of ceramics, some of which had not previously been identified as Verreville products (Brown 2002; Dawson 2002).

But perhaps the most intensively examined site to date is Bell's Pottery on Kyle Street (nineteenth-early twentieth century). Excavations at Bell's were first conducted in the 1990s (Speller 1995; 1996a; 1996b; in press), and the site was subsequently designated a scheduled ancient monument. Further pre-development work has recently been undertaken (Seretis 2002; 2003). These latest excavations provided information on the site topography, and thus layout, and dated several features (Seretis 2003, 19). The excavations recovered material from a filling deposit and other contexts that included forms and designs not previously known through published sources or from previous excavations (Seretis 2003, 20). This demonstrates that valuable information can be derived from deposits not representing *in situ* remains of industrial production, such as from demolition, levelling or filling layers (Seretis 2003, 19). Such information can extend beyond pottery forms and patterns, to structural and building evidence and information on the technological aspects of production.

The post-excavation programme for this work has as its aim the provision of a greater knowledge and understanding of the site and its everyday operations, which are not known from documentary sources (Seretis 2003, 20). Although the bulk of the post-excavation analysis has not yet been undertaken, initial results from the scientific examination of the Bell's wares, kiln furniture, and industrial waste have suggested the value of various approaches (Photos-Jones 1998). Such approaches include petrographic examination of thin sections, scanning electron microscopy combined with dispersive analysis (SEM-EDAX) with the aim of providing quantitative and semi-quantitative chemical analysis, and X-Ray Diffraction (XRD) analysis to provide mineralogical information (Photos-Jones 1998, 1). Technical characterisation of the wares can establish the range of compositions, relative firing temperatures, and the methods and materials of underglaze decoration (Photos-Jones 1998, 3).

These examples in Glasgow form part of an ongoing, UK-wide focus on the archaeological excavation of Post-Medieval and modern ceramic production sites. The most recent excavations have targeted a variety of sites ranging in operation date from the seventeenth century to 1960 (eg Barker & Horton 1999; Gregory 2004; Hayman & Horton 1999; Melton & Scott 1999; Murphy, Ramsey & Higgins 1997). There is also strong international interest in the British ceramic industry, whose products are regularly recovered from industrial-era sites throughout the world (cf eg papers in Egan & Michael (eds) 1999).

Alongside assigning wares to particular potteries and providing a more detailed understanding of the development of these wares for dating purposes, the excavation of British potteries, brickworks, pipeworks etc, or more specifically the scientific analysis of artefacts recovered in such excavations, can inform national and international research in a variety of ways. The compositional analysis of ceramics will serve as an example here. One aspect of this is provenance research, where clays from different localities can be differentiated as they possess different chemical profiles (Gilbert, Harbottle &

DeNoyelles 1993, 44). Work on brick production in New York in the period 1870 to 1942 has shown that bricks from the same works are nearly identical chemically, and this pattern can be consistent through time (Gilbert, Harbottle & DeNoyelles 1993, 44). While there is some overlap between geographically proximate sites, it is still possible to establish some discrimination (Gilbert, Harbottle & DeNoyelles 1993, 45-47). Associations can thus be formed between particular chemical profiles and specific geographical locations, and local wares can be differentiated from imports. The construction of compatible archives of ceramic composition for different areas can thus allow research into a variety of subjects, including industrial development and national and global trade patterns (Gilbert, Harbottle & DeNoyelles 1993, 50-51).

Provenance analysis has also been conducted on British ceramic wares, and has demonstrated that it is possible to establish a correlation between sherd samples and specific production factories, although some sherds remained unattributed due to incomplete source data (Owen 2001, 117-118). This analysis has allowed a better understanding of eighteenth century patterns of trade between the UK and Nova Scotia (Owen 2001, 118). Beyond this, comparison of sherds from New World sites with wasters from factories in the UK has a proven general usefulness in identifying patterns of export (Owen 2003, 94). This type of analysis is particularly useful as it can be difficult to distinguish between wares from different factories on the basis of design or even trademarks, both of which were regularly copied by some manufacturers from their more successful competitors (Owen 2003, 93-94). Whole classes of British porcelain had been misattributed until their production sites were located and excavated (Owen 2003, 94).

Ceramic composition profiles also vary according to manufacturing process, and compositional analysis can thus inform on technological change and other issues, such as industrial contamination (Gilbert, Harbottle & DeNoyelles 1993, 47-49). The analysis of numerous sherds from three Worcester porcelain factories, operating in the period from around 1750 to the early 1900s, was able to track changes in composition through time and identify both continuities and innovation (Owen 2003). Certain chemical elements were seen to increase, and some of these were probably added to the production process to improve paste plasticity or vitrification. Novel glaze compositions were also identified. As well as paste and glaze composition, other technological conditions, such as kiln-firing conditions, can also be investigated (Owen 2003, 94). Compositional analysis can also provide a constraint on the timeframe during which a particular artefact was produced (Owen 2003, 94). Although design characteristics and decoration can be used for this purpose, this often proves impossible due to the small size of the sherd or its condition (Owen 2003, 94), the fact that the sherd is from an undecorated ware, or other factors.

While the focus in much of the above discussion has been on technological and other practical aspects of production, finds analysis and research can also address significant social questions, such as the influence of consumer choice on the specific and changing products of industry (eg Stevenson 2001). Issues of consumer behaviour will be deferred for the moment, as they are discussed below in more detail, in relation to domestic sites and assemblages.

Before moving on to the domestic, though, it remains to briefly discuss the excavation of transport features, particularly canals. Such features are of general importance both in themselves and because they provide the context for industry, informing our understanding of industry as a system running from the supply of raw materials to the sale of products on the market and their consumption (Clark 1987, 172). Transport features are an aspect of the industrial landscape.

The excavation of canals has provided new information on the nature of their construction, and examples of traditional techniques, even reminiscent of Medieval construction practices, have been identified as continuing in use well beyond the Industrial Revolution (Newman 2001, 174).

Excavations and other archaeological recording works at Garston Lock on the Kennet and Avon Canal have provided detail on its construction, alteration, and repair (Harding 1995). The canal was originally constructed in 1715-23 and ran from Reading to Newbury. Photogrammetric survey of the lock recorded its last phase, and a watching brief on repair works identified surviving evidence of two main phases of construction. The first dated to around 1767, when all the locks on the canal were rebuilt, and the second dated to around 1854 when a series of alterations and repairs were carried out. Information was recovered on lock dimensions, construction materials, wood-working techniques, repairs, lock chamber construction techniques, and the re-use of railway sleepers for revetment, amongst other things.

Excavations were also conducted at another lock on the canal, at Monkey Marsh, Thatcham (Harding & Newman 1997). Three main phases were identified for the lock as a whole, and four for some of its parts. Phase 1 probably represents the 1767 reconstruction event; phase 2 saw a reduction in the width of the chamber; and phase 3 saw further narrowing and relining with used railway timbers. Monkey Marsh is a rare surviving example of a turf-sided lock, a technique first used in the sixteenth century and rarely found on industrial-era canals, and perhaps used in this case as the canal started life as a river-improvement scheme (Harding & Newman 1997, 32). Construction timbers were lifted and sampled for species identification and dendrochronological dating (unsuccessful), and the excavations allowed the relationships between the turf and timber revetting structures to be understood (Harding & Newman 1997, 33). Evidence was also recovered of wood-working techniques, the effects of erosion on the lock (with variations in revetting to account for greater turbulence at the lock entrances), and lock widths (which can be related to the type of barge used). Specific technological features, such as the use of different species of wood on different parts of the lock, probably related to the extent to which those sections would be submerged (Harding & Newman 1997, 45).

Comparison of the details of Monkey Marsh with those of Garston suggests sufficient similarities to indicate the use of a standard, basic design on the canal (Harding & Newman 1997, 45). But significant and contemporaneous differences also suggest that there may not have been a consistent specification, allowing improvisation and an element of freedom to the construction team (Harding & Newman 1997, 45). The re-use of railway timber also provides evidence for the compromises made in alterations to the lock, and these sleepers would have allowed the lock to be narrowed with little effort and cost (Harding & Newman 1997, 46).

These examples, where work was carried out on an open canal, highlight the complexity of construction, alteration, and use information that can be recovered through archaeological survey and excavation. What remains to be tested for closed canals, as in the case of the M74, is whether such information is complemented by significant deposits and finds in the interior of the canal. It may well be that silt deposits contain finds providing evidence for activity on and around the canal. It may also be that the final backfill of the canal provided a convenient opportunity to dump waste, and this backfill might, therefore, contain information on contemporary attitudes to refuse disposal alongside examples of finds that may be of interest in themselves.

5.4 *The Domestic Environment*

5.4.1 *Victorian Domestic Life in Glasgow: An Overview*

The various types of domestic site encountered along the route of the M74 fit, broadly, into defined historical categories of residential development and provide a reasonably representative cross-section of the different domestic environments that emerged in the nineteenth century.

While it is impossible, at present, to offer detailed discussion on the potential character of the domestic archaeology that will be encountered, previous historical research and the limited and largely unpublished previous archaeological work that has been carried out in Glasgow do allow some general, broad-brush statements to be given.

Glasgow is well-known for its industrial-era tenements, and Scotland in general was at the forefront of development in this form of building, which was well-advanced by 1830 and was soon to be found across the industrialised world (Glendinning 2003, 108-112; on Glasgow cf Worsdall 1979). Tenement schemes, initially erected by small builders and then, from the late nineteenth century, by large, speculative developers, catered for both the new proletariat and the bourgeoisie (Glendinning 2003, 112-113). By 1900, tenement flats were being provided for all but the unskilled working class and numerous distinct class-based districts had been created (Glendinning 2003, 113).

But the city was not characterised by tenements alone, and social segregation was compounded by the development of the ex-urban 'villa', another form developed early on in Scotland (Glendinning 2003, 108, 113). Two boom periods have been identified in the development of Scottish suburban domestic architecture, between 1770 and 1840 and between 1870 and 1905 (Mays 2003, 75). Glasgow enjoyed an early suburban expansion in the first of these periods, and suburbs came into existence throughout Scotland in general from the late nineteenth century (Mays 2003, 75-76).

Both in the cities and towns and in the surrounding countryside, the eighteenth and nineteenth centuries also saw the construction of purpose-built cottages to house farm servants, industrial workers, fishers, and others (Carruthers & Frew 2003, 93-96). In Scotland, these were often of two rooms, frequently

built in pairs or rows, and regularly followed English styles (Carruthers & Frew 2003, 93-94, 97). They were usually built with the motive of improving the living standards of the skilled worker, and encouraging such skilled workers to move to a particular area or to remain (Carruthers & Frew 2003, 97). Competition to attract skilled employees lies behind the construction of similar cottages elsewhere in the UK, though other factors such as the general prestige of the works or the philanthropic aims of the owner are evident (eg Dewhurst 1989; Timmins 2000).

In Glasgow, these developments in domestic architecture addressed the demographic explosion attendant on the industrialisation of the city. By 1821, Glasgow was Scotland's main demographic centre with a population of 147,043, and between 1801 and 1861 the demographic base increased more than fivefold from 77,385 to 395,503 (Maver 2000, 83). A principal factor in this was the increasing number of immigrants and in-migrants, and by 1851 18.7% of the population was Irish-born, with a large proportion of the Scots population deriving from the proximate counties of Lanarkshire, Renfrewshire and Ayrshire, and others flowing in from the Highlands (Maver 2000, 85, 171). Although many districts housed a mixed population, a pattern of association between the poorer areas and Irish immigrants did develop, and some contemporary observers came, simplistically, to place the origins of poverty in ethnic identity (Maver 2000, 85). However, the profile of the population was not static: the Irish population had declined to 6.73% by 1911; and, the later nineteenth century saw increased immigration from Europe, particularly from Russia and Italy, although the numbers of these groups remained low at less than 2% of the total (Maver 2000, 171).

Thus, the growth of distinct districts was partly tied to national and cultural origins, but perhaps more importantly it was increasingly bound to the creation and maintenance of class differences. Many areas of the south side of the city initially developed as middle-class suburbs, as was the case in Laurieston, Tradeston, Hutchesontown, and Kingston from the 1790s and Crosshill and Langside later in the century (Maver 2000, 94-98; Williamson, Riches & Higgs 1990, 505-507). However, the character of many of these areas changed through time (Williamson, Riches & Higgs 1990, 507, 522). The amenity of Laurieston was destroyed early on by the construction of William Dixon's Pollok & Govan railway, though the district's main developer, James Laurie, persevered in building smart tenements through to the 1830s. By the 1850s, Tradeston had become irredeemably industrial in character, and artisans' tenements had spread into Laurieston from the east. William Dixon, of the Govan Iron Works, was largely responsible for the development of Govanhill. He started selling feus there from around 1869 and the area retains many of the tenements that emerged over the ensuing 20 years. Middle-class tenements were built in Hutchesontown into the 1850s, but a complex of mills, workshops and workers' houses had developed to the south. The Gorbals became increasingly over-crowded and the City Improvement Trust redeveloped the area between 1871 and 1891. Pockets of earlier middle-class villas remained in areas like Laurieston and Hutchesontown until after 1945, but comprehensive development followed in the 1950s and 1960s.

If the industrialisation of the city and the massive expansion of its population necessitated greater housing provision, attendant sanitation and health problems also required significant change in the domestic environment. General descriptions of Glasgow's 'slums' refer to overcrowding, disease, dunghills in the backcourts, and poor sanitation throughout the city, with the lack of a formal water supply (Maver 2000, 86-89). Despite the fact that such descriptions represent only a partial view of the urban environment, these views were significant to the municipal authorities and form the context for the civic improvements of the later nineteenth century. Programmes of slum clearance and rebuilding were undertaken, and the municipally-controlled City Improvement Trust was created in 1866, with slum demolition beginning in earnest in 1870 (Maver 2000, 87-89, 174). The municipal waterworks was opened in 1859 and a formal administrative structure for sanitary control was created by the 1862 Police Act. In the 1870s and 1880s, police burghs were formed beyond the city limits in many areas of the south side, including Crosshill, Kinning Park, Pollokshields West, Pollokshields East and Govanhill (Maver 2000, 91, 99, 171). Acts in the 1860s laid the basis for a centralised Public Health Department and the first full-time Medical Officer of Health was appointed in 1872 (Maver 2000, 171-172). In 1891, the Police Burghs of Crosshill, Govanhill and the two Pollokshields, amongst others, merged with Glasgow and welcomed the city's developing sewerage system (Maver 2000, 180-181). Under the Dean of Guild Courts, building control measures were used to extend sanitary provision. Internal WCs had been common in Glasgow's middle-class tenements by the mid nineteenth century, but spread to other houses after 1880 (Glendinning 2003, 117).

What little archaeological work there has been to date, mostly in the High Street area of the town, has shed some light on Glasgow's tenements, and particularly on the domestic back-lot use in the

eighteenth and nineteenth centuries (eg Bailey 1992; 1993; Chilton 1980; Cox 1993; Kerr 1984; McBrien 1984; 1985; 1986; 1990; Thomson & MacIntyre 1987). Many tenement sites have revealed back-lot wells, unsurprising considering the lack of municipal water supply until the later nineteenth century, and a variety of pits of eighteenth-to-twentieth century date have also been found. Some of the wells may have been built centuries before, and some were found to have been deliberately capped, presumably when finally abandoned. In some cases, back-land buildings, including wooden buildings, have also been identified, though there is little information available at present to discuss their function and use.

The various pit and shaft features, as well as wall-foundation trenches, serve not only to inform on the use of tenement sites and on issues like sanitation and water supply, but have also returned significant assemblages of artefacts that have the potential to inform on other aspects of domestic life. Finds have included large quantities of ceramics, bottle glass, clay pipe fragments, metal objects, and others.

Evidence on landuse, water supply and sanitation for other, non-tenement sites has also been recovered in and around the city. Excavations have recently been conducted at Alexander 'Greek' Thomson's 1857-8 Holmwood House in Cathcart, now owned by the National Trust for Scotland, with the aim of investigating the character of the original garden (Glendinning & Neighbour 1998; Neighbour & Glendinning 1997). The present garden dates to the 1920s, but archaeological evaluation demonstrated that original features survived below the surface, including greenhouse foundations, paths, original pipes, and the profile of the original garden topography, which sloped away from the house. Full excavation followed, and this identified further early garden features preserved beneath substantial overburden. Five phases of garden development, from the time of original construction to the 1920s, were identified. Only three of these were shown on OS maps. The plan layout of the earliest garden was recovered, along with evidence of individual features like the greenhouse and a vinery.

Wells have been identified at Pollok House and the site of Yorkhill House (SRC SMR 1995 and Robertson 1961, respectively). Although these houses were at the grander end of the scale, and originally built in the rural environs of the city, the presence of the wells does at least confirm that this was the usual form of water supply beyond the tenement. The well at Pollok House was, again, capped and retained evidence of its pumping system. Two wells were found at Yorkhill and, again, these retained evidence of their pumping system.

In addition to the above, we might expect a range of other features that are frequently identified in other industrial cities. From the mid nineteenth century, ash or earth closets or pits were common for the deodorisation of waste matter (Newman 2001, 164). These comprised wooden boxes or pits into which ash, domestic refuse, and night soil were deposited for storage before being carted away by scavengers and sold as manure (Newman 2001, 164).

While this is only, by necessity, a passing glance at Victorian domestic life in Glasgow, it has served to establish that, even after demolition, archaeological evidence on domestic life and back-lot landuse does survive, and this evidence has the potential for analysis with reference to key historical themes such as sanitation and health. Importantly, shaft and pit features often provide large and closely dateable artefact assemblages from well-sealed deposits, and these assemblages often represent single event depositions (Matthews 1999, 166). While emphasising the interpretative value of such deposits, the discussion below will also show that archaeological value can be derived from other forms of deposit and assemblage.

The sections below discuss some of the significant historical insights that have been made possible, in countries outside Scotland, by the analysis of just such well and pit features, domestic artefact assemblages, back-lot structures, landuse data, and other material. It is not an exhaustive account – for one thing, the literature is now too voluminous to achieve this in the present context. However, several key themes are identified as potentially relevant to Glasgow and will also serve as an exposition of the value of industrial-era, urban, domestic archaeology. These themes will be discussed under three headings: sanitation, health and back-lot landuse; consumer society, politics in daily life, and foodways; and, the nature of social life and gender relationships in the home and in public. For reasons that will become clear, a discussion of pub archaeology is included under the last theme. Several general themes also underlie all of the above, including the creation and maintenance of socio-economic class distinctions. Issues of 'race' and 'ethnic' differentiation have been relevant to research in many countries, and the latter certainly has some relevance to Glasgow. As will be seen, the archaeology of domestic life can act to confirm aspects of the established historical narrative, and it can also allow us to see subtle but meaningful variation in the social trends identified from historical sources. But, archaeology can and often does go far beyond this to question the validity of existing interpretations and

to identify previously unknown behaviours and humanise historically stereotyped population groups, who are revealed as active in addressing the conditions of their existence.

5.4.2 *Sanitation, Health, and Back-lot Landuse*

Back-lot features in industrial cities in the USA have seen substantial excavation and analysis in recent years, and something of an archaeology of the privy has emerged. Privies have been identified as informative features, embodying ideas about cleanliness, health, beauty, and privacy, as well as providing data on diet, socio-economic differentiation, differing domestic behaviour, and variation in the construction and maintenance of sanitary facilities (Wheeler 2000a, 1). A recurring theme has been the unevenness of local adaptation to sanitary improvements, with great diversity across space and time and between socio-economic classes and ethnic groups (Wheeler 2000a, 1).

Privies, when excavated with close vertical and contextual control, often yield good evidence on their construction and use, on maintenance behaviour, and on attitudes to hygiene (Wheeler 2000b). In terms of construction, one main issue is the siting of privies with regard to doorways, prevailing winds, water pipes, cellars, property lines, or other relevant features (Wheeler 2000b, 4-6). The factors governing location seem to vary and include aesthetic principles ('out of sight, out of mind') as well as sanitary concerns, such as the contemporary perception of miasmas, or odours, as disease-bearing vectors. The excavation of 23 privies in Portsmouth, New Hampshire, allowed a pattern of placement to be established, and privies were generally found at the remotest spot from the house (Wheeler 2000b, 5-6). However, this pattern was not consistent through time and the movement of the privy away from the house through time shows changing attitudes to cleanliness. One other common factor was the placement of privies beside property boundaries and, thus, largely out of sight. The relationship to the prevailing wind does not, in this case, seem to have been that important. Other questions on construction have been asked: were privies professionally constructed or not? Does their size relate to household size and length of occupation? How much labour and money was invested in sanitary provision? (Wheeler 2000b, 6-7). An analysis of privy architecture in Louisville, Kentucky, has shown that privy construction did, in many ways, conform to city ordinances (Stottman 2000). However, significant deviations from sanitary rules were also found. Some privies did not conform to stipulations on depth and construction materials. Some were also shown to have continued in use well into the twentieth century, despite municipal stipulations that all households were to be connected to the mains sewerage system.

Use and maintenance processes result in the accretion and depletion of deposits within the privy, and these processes are thus amenable to archaeological study (Wheeler 2000b, 8-10). In Portsmouth, again, and in New York (Geismar 1993), city ordinances prohibited the deposition of household refuse in the privy, but excavations have recovered artefacts and other materials showing that this was common practice. Artefact distributions can also be analysed to establish the relative solidity or liquidity of privy matrices when in use, and this informs on the types of waste that were dumped in the interior. Maintenance practices are evident in truncated deposits, created as material is emptied, and in some additive deposits, such as non-organic layers deposited to seal or deodorise the contents of the privy. Despite the fact that rules on refuse disposal were not followed in New York, the privies were at least managed, as is seen in deposits of lime and evidence of partial emptying (Geismar 1993).

On abandonment, many privies seem to have been used as convenient dumping grounds for household refuse, and this often seems to relate to specific events like the death of a householder or a change of occupant (Wheeler 2000b, 11-12). Other cut features, such as pits, cellars, and trenches, often contain similar dumps of material, and this provides information on habits of refuse disposal, as well as providing data on household goods and behaviour. In many cases, attempts were also made to seal the privy with clean soil and clay or ash caps, to manage odours. Above ground elements of the privy can also sometimes be reconstructed from their demolished remains, where pushed into the shaft.

Beyond the privy, other excavations have charted attitudes to refuse disposal in the backyard as a whole. Excavations in Washington DC have shown that refuse disposal practices varied substantially from house to house, and large amounts of material were recovered from the open yards associated with some dwellings, having been scattered on the surface or shallowly buried (Crane 2000). The spatial distribution of different artefact forms indicated discrete clusters of material and the probable former locations of features such as the ash box. On some sites, the recovery and analysis of faunal remains has shown a rise in organic dumping through the nineteenth century, while on others there was a decrease over the same period. This seems to relate, broadly, to class, with white collar families reducing their

organic dumping and working class families increasing it. Seemingly class-related variation in rubbish (ie non-organic) disposal was also noted and various social factors may be responsible for these patterns, including differing and changing attitudes to sanitation, variations in household ownership, and the rate of turnover of occupants. To some extent, this can be interpreted as confirming Victorian reforming accounts of the relatively unclean nature of working class areas, but evidence was also recovered which shows that these same households did take action to control miasmas and other perceived health nuisances: a dog burial had been limed; there was a low incidence of evidence for vermin, such as gnaw marks on bones; and one worker's house produced a rat trap.

Artefacts and environmental samples from back-lot features have also regularly provided evidence on disease and medicinal treatment. Historical documentation for Harpers Ferry, West Virginia, indicates a degree of resistance to sanitary reform among the town's armoury workers, and the analysis of privy soils for parasites indicative of fecal-borne disease has shown that the effects of this resistance were continued incidences of such disease into the twentieth century (Reinhard 1994). The situation appears to have been less straight-forward in Minneapolis, where there was variation in the incidence of roundworm and tapeworm infection between different groups (McCarthy & Ward 2000).

Archaeological recovery and analysis of medicinal vessels and archaeobotanical remains from New York's Five Points district, a notorious slum according to nineteenth century sources, and other areas of the city, has allowed a relatively nuanced appreciation of the incidence of disease and its treatment across various social groups, and has greatly enhanced limited and biased historical accounts and health records (Bonasera & Raymer 2001). At a time when doctors were relatively expensive, many Five Points residents appear to have had significant concerns over their health and to have taken active measures in this regard by resorting to self-medication. Large numbers of medicine bottles were found. The largest proportion of these were 'ethical' medicines prescribed by a physician or, more likely, by a dispensary or apothecary. But proprietary or patent medicines were also common, and these would have been bought without resort to professional advice (perhaps with consequences, as analysis of the contents of one such bottle from another site has shown that it contained none of the advertised active ingredients (Torbensohn *et al.* 2000)). Many soda and mineral water bottles were also recovered, and their contents were probably considered to have curative properties at the time.

From these bottles, the common ailments seem to have been rheumatism, strains, and soreness. Dyspepsia and other digestive tract complaints, female-specific problems, colic, scrofula, burns, mouth pain, cholera, blood diseases, and venereal disease were also apparently prevalent. All this does confirm the poor health described, in a general way, by the historical sources, but it also shows active treatment by the community itself. This last point is amplified through analysis of the botanical remains. Jimsonweed and wormseed were prevalent on some sites. Jimsonweed is a narcotic and toxic herb that has value as a treatment for asthma and was also used in salves and poultices for sores, boils, pimples, swellings, and skin ulcers. Wormseed was highly regarded as a medicinal herb, particularly in the prevention of worms. Interestingly, on the sites where it was identified, the incidence of wormseed declines through time, as does the parasitological evidence for worm infestation, and there is a lack of medicinal bottles containing other worm treatments. This implies that the inhabitants of these sites were effectively treating the problem by growing their own medicines. These sites were associated with Irish immigrants, and adjacent or nearby sites associated with German/Polish Americans show a high incidence of roundworm and a lack of evidence for wormseed. Knowledge of herbal medication thus varied from community to community, with significant results for relative health.

Archaeological analysis of domestic back-lots is not confined to these issues of sanitation and health, but can address a number of other topics surrounding behaviour and landuse, such as domestic industry and the development of the urban garden.

For example, developer-funded excavations on the back-lots of Victorian and later housing in Chester, England, have yielded evidence of unofficial, and thus unrecorded, metal working (Matthews 1999). From the 1850s to 1939, one part of this site was occupied by courtyard-type housing and, alongside the dwellings themselves, a toilet block, and a variety of external surfaces, the excavations revealed a succession of three smithies, the latest of which was constructed before 1908. This had two hearths within very confined spaces, too narrow for adults and even constraining for young teenagers, suggesting that the hearths were worked by children, probably producing nails. By the 1930s at least, the inhabitants of the courtyard were amongst the poorest members of the population, frequently unskilled, and generally unemployed. The evidence for domestic industry as late as the early twentieth century, therefore, demonstrates one of the strategies employed in dealing with poverty. One dwelling also

returned evidence of bone button manufacture and the site also yielded cat bones with cut marks, which may be evidence of the exploitation of cat fur in glove making (a process only otherwise attested by urban myth).

Domestic craft activity can also be understood from the detailed analysis of artefact distributions across a back-lot site. Excavations in Annapolis, Maryland, on a site of late eighteenth to mid nineteenth century date, identified a structured spatial distribution in the artefacts found spread across the site (Galke 1998). As a result of close spatial and stratigraphic control of finds recording during excavation, activity areas were identified by clusters of functionally or activity-related objects. More strictly domestic deposits, such as dumps of household refuse, were analysed in the same way. On this site, the use of the back-lot appears to have changed through time as craft activity eventually disappeared and domestic and garden activity came to dominate.

The subject of gardens has received some amount of attention. Garden structures, paths, and other features can be identified during excavation (as described for Holmwood House, near Glasgow, above). But appropriate environmental sampling and post-excavation analysis can also be deployed in a number of ways to reconstruct past garden or other landuse.

For example, phytolith analysis at Harper's Ferry has identified a sequence of changing landuse at two sites: a master armourer's house and an armoury worker's house (Rovner 1994). At the master armourer's house, change in grass cover through time indicated the change from a garden or kept yard to a relatively barren space. Particular types of grass identified for the earlier phase indicate that a distinct micro-climate had been created, perhaps as a result of the presence of a smokehouse. At the worker's house, there was no evidence for a kept yard or garden in the earlier phase, but there were indications of later deliberate landscaping, probably about the time that an extension was added to the house. This later evidence suggests flower and vegetable gardening in a side yard, but only for a brief period coinciding with the operation of the property as a boarding house. This use of the garden appears to have ceased around the time that the boarding house moved to another site.

Alongside phytoliths, pollen data reflect urban land use sensitively and pollen analysis has proved successful on several sites, such as in Boston or at the Boott Mills in Lowell, Massachusetts (Kelso & Beaudry 1990; Kelso 1993, respectively). The pollen profile can reflect relatively barren ground predictable in an active workspace, and it can allow us to trace the density and diversity of plant cover and the loss of these as urban living space encroaches on a site (Kelso & Beaudry 1990, 75-78). Even where the various pollen spectra themselves cannot yield meaningful interpretations, as is the case with arboreal pollen which is too biased by long-distance transport to yield reliable land use data, the ratio of different pollen (arboreal to non-arboreal) in a spectrum provides useful measures of local pollen production that may be converted into estimates of relative local groundcover density (Kelso & Beaudry 1990, 78).

Pollen leaching and degradation are normal, natural processes in soil profiles, but under certain conditions these processes are affected by human activity (Kelso 1993, 87-89). The intensity and concentration of local land use on a site can be identified because intense activity can preclude pollen percolation through deposits, or it can disrupt the matrix of a deposit. Variations to the natural processes affecting pollen in the soil can thus indicate levels of activity and disturbance on the site. Disruptions may be preserved by rapid, deep burial and relative pollen concentrations are reflective of the degree of groundcover. For example, a formal lawn will show leaching as the dominant process, whereas disturbed ground will show the suppression of this process, indicating the extent to which a space was intentionally maintained as a garden. At Boott Mills, despite company regulation, the workers do not seem to have maintained their back-lots as required (Kelso 1993, 89-90). The back-lot of the company agents' house had witnessed a period of active use and then less intensive use, and this coincides with the changing household profile, as the house came to be occupied by older married and childless couples with fewer servants (Kelso 1993, 90).

The archaeological analysis of gardens informs on the domestic economy and on varying attitudes to the maintenance of a garden between different social groups. Gardens are also increasingly studied for the information they give on prevailing ideologies and social politics (Shackel, Mullins & Warner (eds) 1998, 213). The eighteenth century gardens of the Chesapeake have been identified as one of the technologies used by the planter elite of that area to express their desired vision of social order and to attempt to establish the legitimacy of their social position (eg Kryder-Reid 1998; Leone 1984). Similar issues have been discussed in relation to English country gardens of the same period, with gardens seen as giving specific evidence of the ways certain groups and individuals sought to interact with family, friends,

neighbours, political allies, and social inferiors (eg Williamson 1995; 1999). The sub-discipline of garden archaeology is now established on both sides of the Atlantic, and archaeological data has proved valuable to garden history as many aspects of garden design and layout were often not committed to paper (Williamson 1999, 246-247).

Importantly, the social analysis of gardens is not just relevant to rural contexts, large designed landscapes, or the wealthy commercial and landed class. For instance, the evidence for the intentional creation of gardenlike landscapes around industrial sites has been interpreted as an attempt to harmonise industry with nature (Shackel, Mullins & Warner (eds) 1998, 215). The manipulation of the rules of geometry, especially in small urban lots, and the creation of ostentatious formal gardens has been argued to suggest that the wealthy sought to claim an understanding of natural order, and thereby legitimate their social position (Shackel, Mullins & Warner (eds) 1998, 215-216). But gardens are also found to change through time, evidencing changing mechanisms of social negotiation (Shackel, Mullins & Warner (eds) 1998, 216).

Garden archaeology also allows an appreciation of the specific ways that certain individuals and groups sought to cope with the new and changing industrial and urban environment. In cases, they appear as havens of calm and politeness away from the surrounding urban environment, allowing for walks, social display, and acceptable forms of interaction with one's peers (Newman 2001, 149). The interesting questions for a given town or city are: why were such havens considered necessary? When did they first appear? How did they change through time? And, what does this tell us about changing urban society?

5.4.3 *Consumer Society, Politics in Daily Life, and Foodways*

The historical archaeology of consumer society and consumer behaviour has grown over the last 15 or so years to become one of the subjects dominating the main disciplinary journals and inspiring numerous books and edited volumes (a notable early example being Spencer-Wood (ed) 1987). The study of the historical dimensions of modern consumer behaviour is an area where archaeology has an obvious contribution to make to the social sciences as a whole (LeeDecker 1991; Tarlow 1999, 264), where psychology, sociology, social psychology, anthropology, and economics combine to analyse not just the economic, but also the social aspects of consumption (Henry 1991, 3). The archaeology of consumption is also one area where British archaeologists have made a sizeable contribution, largely through artefact studies, though the subject remains less-developed here than abroad (cf Howard-Davis 2001 for a recent overview).

In many ways, the archaeology of consumption is the natural correlate of industrial archaeology, which focuses on production. To fully understand industrial society, we have to do more than study production alone. Production is influenced by perceived consumer demand, as has been discussed in relation to industrial-era English potteries (Stamford 1997). Some ceramic forms and styles are popular and enduring and are produced by a number of firms, while other types have a short production life and are limited to a single firm, which can be seen as a result of differential consumer choice. Studies of consumption can, thus, better inform our understanding of industry. But it is naïve to see artefacts solely as the conscious creation of an individual manufacturer (Johnson 1999, 128). This view has its roots in the early discussions of commodities that stemmed from Marx's concern for the social conditions surrounding production, but a current concern in the social sciences is to understand commodities in use, which is particularly relevant in the context of ongoing debates on the nature and effects of globalisation and global capitalism (Carroll 1999, 132-133). How do people create, maintain, recreate, and reinforce individual and group identities and social relationships, and to what extent do people become entangled in global processes but not subsumed (Carroll 1999, 132)? What are the origins and history of this entanglement? The domestic household, the context of use and meaning for consumer goods, must be studied together with the industrial works and the products of industry themselves if we are to get a full picture of industrial society (Klein 1991, 25).

Archaeology, with its focus on material culture, is especially well placed to study the history of consumption (Carroll 1999, 134). The range of questions that archaeologists have sought to address is wide, but most would agree with Barbara Little's contention that mass-manufactured goods do not simply mean mass-manufactured culture (Little 1997, 225). Factors affecting the duration of use and rate of acquisition of commodities like ceramics through evidence of repair, curation as heirlooms, and so on have been studied (eg Adams 2003; Willmott 2001). Some have also sought to chart patterns of household expenditure: what could different groups afford; how much did they spend on different types of goods and, therefore, what were their priorities? (Miller 1991). Other have considered the extent to

which consumption in different districts and regions, as characterised from archaeological data, was affected by access to markets and ‘commodity flow’ (Adams, Bowers & Mills 2001).

But consumption is much more than a simple indicator of socio-economic status or any of the above factors. It is meaningful action (Cook, Yamin & McCarthy 1996). Much recent work in the archaeology of consumption has explored the expression of social identities and attitudes through the use of things, especially amongst those groups excluded from the historical record, and it has explored variation in the nature of social interaction through artefact assemblages (Little 1997, 238). Below, some aspects of these discussions will be explored, primarily the analysis of everyday politics and foodways. Detailed discussion will not be given separately on some of the broad issues that have frequently been raised, including the relationship of consumer behaviour to socio-economic class, perceived ethnicity or race (eg Griggs 1999; Mullins 1999; Warner 1998). However, these issues have informed much of the work discussed below, and they will have to be addressed, in one way or another and depending on the context, by an archaeology of consumption in Scotland.

Certain artefacts are occasionally altered with specific political intent, as seems to be the case with a group of defaced nineteenth century British and French coins recovered in Wiltshire (Robinson 1987). But the relationship between consumer behaviour and politics is more properly studied in the mundane, everyday artefacts found on most domestic sites, such as pottery and clay pipes.

As noted above, the production of goods is partly conditioned by the perceived market for those goods. How then are we to understand the various British, Scottish and Welsh motifs on transfer-printed ceramics of the eighteenth and nineteenth centuries and their relationship to the creation of a British identity after the Union of 1707 and subsequent events? What aspects of that identity were presented? How popular did British, Welsh or Scottish motifs become, and how did this popularity vary from region to region or from one time to another? Popular styles emanating from the Staffordshire potteries depicted scenes of rural prosperity or notable British and Imperial events, like the ‘Death of Nelson’ (Brooks 1999, 54-58). These wares might be read as evidence of the creation of a popular British consciousness. Scottish and Welsh themed designs might also be read as evidence of this same process, despite their concentration on individual national subjects. Some such designs formed elements of design series that encompassed subjects relating to different parts of the United Kingdom, presenting national difference as subsumed within the wider body politic (Brooks 1999, 58-60). The content of the design also often represented a romanticised ‘Balmoralisation’ of Scottish culture or a mythic Celtic Welsh and Scottish past, and this material forms part of the process whereby potentially subversive national identities were emasculated and absorbed into British culture as a whole (Brooks 1997, 51-52). The Celtic myth was also an international phenomenon found throughout much of the industrialised West, from Western Europe to America and beyond (Brooks 1997, 52-54).

In general, then, pottery was one mechanism whereby British identity and national myth were promoted and popularised, and this adds to our understanding of the creation of the British state in the modern period. But the archaeology becomes much more informative when we analyse the patterns of popularity of this material in more detail, on specific sites, through comparison of different geographical areas, and by comparing it with corroborating data (Brooks 1999, 61).

Just this sort of research has been undertaken, with some success, in the USA (eg Shackel 1998). At New York’s Five Points, clay tobacco pipes from a variety of nineteenth century sites have been studied with a view to understanding the localised use and impact of wider American political ideologies, particularly the local manipulation or rejection of American patriotic rhetoric (Reckner 2001). This was a working class district, and the prevalence of pipes bearing patriotic legends or symbols, such as the eagle, concords with historical evidence that the trades unions co-opted such symbolism to counter accusations that they were undemocratic and unpatriotic (Reckner 2001, 108-109). However, when the various clay pipe styles are related to specific sites, a more complex story unfolds. Another aspect of American political ideology at this time was Nativism, where native-born Americans defined themselves in opposition to the foreign-born ‘other’, and in Five Points this meant the Catholic Irish who flooded in from the 1840s with the potato famine (Reckner 2001, 109). The contemporary press drew a contrast between stereotyped Irish immigrants and native-born American citizens, but German and other Protestant immigrants faced fewer barriers to integration (Reckner 2001, 111). This situation continued through to the later nineteenth century, when Irish-Americans gained greater acceptance within American society as a whole. One result of this, evident from the clay pipes from sites whose occupants have been identified, is that Irish immigrants developed an identity firmly based in links to Ireland and Irish politics and failed to assimilate fully to broader American society (Reckner 2001, 111). Legends like

'Home Rule' and symbols like the harp and shamrock were commonly found, but American patriotic symbols were absent. Interestingly, this pattern changes towards the end of the nineteenth century, as Irish-Americans faced less aggression from their neighbours.

More subtle, not overtly political differences between classes or cultural groups can also be identified through the archaeological study of consumption. One of the principal ways this has been approached is through the analysis of foodways, meaning all those behaviours associated with the purchase or procurement, storage, preparation, cooking, and eating of food. These behaviours can be understood from artefacts and faunal and botanical remains, though this does not exclude the use of other forms of data.

Artefacts can inform on various types of foods purchased, as evidenced by commercial food packaging for example (Jones 1993). But they can also indicate varying cultural practices surrounding the meal itself. For example, ceramic assemblages from the Hebrides exhibit certain characteristics that separate them from Lowland Scottish and English assemblages (Webster 1999, 68-71). A prevalence of bowl forms over plates has been identified through excavations in St. Kilda, and this is a pattern repeated throughout the islands and one that continued until relatively recently. In this case, the introduction of mass-produced wares evidently did not mean a wholesale change in behaviour, and what we see is a local appropriation of these goods into established behaviours. Craggan pottery and wooden vessels, such as the quaich, also seem to have favoured bowl forms. Rather than the indiscriminate adoption of available market forms, certain mass-produced wares seem to have been preferred, as they fitted with prevailing practices associated with eating habits and dietary preferences.

The analysis of foodways can also be conducted at a more refined scale, and, with good data, domestic foodways appear to be particularly sensitive to household cycles (eg a change of occupant, or a change from a young household with children to an elderly household without) (Groover 2001). Again with good data, it is even possible to differentiate the behaviour of different groups within a multi-occupancy household, such as a boarding-house (Pena Denmon 2000). While plant remains (Holt 1991) and artefacts (to be discussed in more detail in the next section) are extremely useful in this regard, discussion here will focus on faunal remains.

Faunal remains can indicate how meat was acquired, as whole animals, wholesale cuts, or retail portions, for example (Huelsbeck 1991, 72). The represented units can then be quantified and interpreted as evidence of consumer behaviour, related to socio-economic differentiation and social behaviours, whether these relate to class, cultural practice, or whatever else (Huelsbeck 1991, 72; Rothschild & Balkwill 1993). Food preparation, cooking methods, and meal composition are also capable of analysis (Rothschild & Balkwill 1993). Analysis of faunal remains from colonial-era sites in Annapolis, Maryland, has indicated a degree of market-regulated access to certain meats, but has also linked meat consumption to class affiliation (Lev-Tov 1998). Wealthy inhabitants seem to have preferred a rich and varied diet, including game and offal alongside the choicest cuts of mutton, pork, and other meats, and this may be related to feasting practices. The middle class, however, seem generally to have preferred a blander diet, despite the fact that many will have been able to afford expensive foods. This indicates a degree of deliberate class differentiation through eating practices and diet, and should be interpreted in light of the fact that these two groups were in conflict at this time due to the monopolisation of political power by the planter elite.

Different factors have to be considered in other cases. Faunal analysis of remains recovered from a small mining town in Nevada, and dating to the later nineteenth century, has described how meat consumption there was less sensitive to social differentiation (Schmitt & Zeier 1993). Similar things seem to have been consumed by different groups, and this may be related to the restricted availability of certain foods. Many of the town's inhabitants depended for their food on the few retail establishments that there were in the town, but the principal customers of these suppliers were the town's boarding houses and restaurants. A restricted choice of leftovers seems to have been available to the majority private householders. Differentiation between groups, in this case, was more evident from ceramics, a wider choice of which was available through both retail and mail order outlets.

5.4.4 *Social Life and Gender Relationships in the Home and in Public*

Studies of consumer behaviour, especially when they address topics like foodways, link in with other significant areas of historical research, such as the changing structure of family life, gender relationships, and public socialising with industrialisation and urbanisation. For a number of excavations, especially those which have recovered structured deposits of artefacts from back-lot features, it is possible to

discuss the development of 'domesticity' and the growing distinction between gender domains, with the home as the female sphere and the outside world as the male. Again, these long-debated historical issues benefit from archaeological analysis as archaeology can address subtle or localised yet significant variations in general social trends, establish the practical and often unconscious mechanisms whereby a known historical process operated, and reflexively evaluate narratives drawn from documentary sources, which may be confirmed, re-interpreted, or undermined as a result.

Material from sites identified as having middle-class occupants in Victorian Brooklyn has charted the creation of a cult of domesticity through dining habits and children's toys that matches stipulations given in contemporary advice literature on household furnishing and dining etiquette (Fitts 1999). But work on ceramics from Greenwich Village suggests that, in the mid nineteenth century, this domesticity was defined differently by women at the poorer and richer ends of the middle-class spectrum (Wall 1991). The domestic worlds of both groups were in some ways similar, but in other ways quite different. Similar table wares seem to have been used for family meals, and these wares comprised 'Gothic' styles made in Britain exclusively for export. The style of these ceramics may refer to contemporary trends in church architecture and 'Gothic' dining sets may have been bought to give an overtone of sacredness to the family meal and to contrast it with the outside world of the capitalist market-place, which was largely a male domain (Wall 1991, 78-79). Teawares tell a different story (Wall 1991, 79). Both groups had tea sets matching their dining wares, and it is likely that these sets were thus also used for family meals. However, the wealthier group also invested in an additional set, in a different style. This implies a distinct tea ritual, separate from the family meal and likely to have been undertaken with the female friends of the women of the house.

The analysis of ceramics has also given new insight to the chronology of the emergence of the practices associated with domesticity (Wall 1994, 162-163). The archaeological evidence does seem to show the historically attested separation of the women's sphere (the home) from the men's (the workplace, political life) amongst the middle classes. But the evidence also suggests that women were not simply passive in their increasing confinement to domestic life. The practices surrounding the cult of domesticity are evident, in material culture, and emergent well before they coalesce into the explicit ideology that finds its way into the prescriptive literature of the 1830s and later. Women themselves were thus active in the genesis of domesticity. This is a potentially uncomfortable statement, considering the continuing effects of this process, but it is tempered if we recognise that women of the early nineteenth century acted in relation to their own contemporary concerns, not with our benefit of historical hindsight, and that their actions in this regard were only one factor in the separation of home from the outside world (Wall 1994, 163).

It is also evident that this transformation of the meaning of the home was not equal across all society. Ceramic analysis from working class sites in New York, in comparison with the material discussed above, suggests that working class households did not emulate the middle class in their choice of dishes for the table (Wall 1999). While the ceramics used by the working class are indeed superficially similar to middle-class wares, on closer examination their style is really quite different in that they exhibit styles absent from middle-class households and 'Gothic' patterns are not represented (Wall 1991, 111-112). Significant difference is also seen on sites associated with African-American households (Wall 1999, 114). Amongst different groups within the working class of Washington DC, common working-class attitudes to household consumption seem to have prevailed (Seifert 1991). However, the quantity and quality of goods bought to furnish the same social desires varied, and this may be a function of relative wealth.

Variation in assemblages of toys also aids our understanding of these same processes of diverging public and home life and changing gender relationships. The historical literature on children's play is largely devoted to middle-class play, with little discussion of children's toys and games in a working-class context. However, archaeological work has served to enhance this literature and to discuss in greater detail the ways in which children across society were imbued with appropriate social values (Yamin 2002). Many middle class sites have yielded toys consistent with domesticity, such as tea-sets, dolls and other things (Fitts 1999). Working class sites have yielded similar toys, suggesting a similar process whereby girls were prepared for a housebound adult life (Yamin 2002, 117-118, 123). Significantly, this contrasts with the discussion of ceramics given above, which serves to underline the complexity of this issue of domesticity and the need for continuing research. This said, other forms of toy, particularly marbles, do exhibit a stark contrast between middle-class and working-class sites. Marbles, whether of ceramic or glass, are often the most numerous children's toys found on nineteenth century archaeological sites and some styles have good dating potential (Carskadden & Gartley 1990). However,

the prevalence of these artefacts varies from site to site. In New York, again, working-class areas like the Five Points district returned sizeable marble assemblages, but this contrasts with assemblages from middle-class districts, suggesting that this form of play was not acceptable around the middle class home (Yamin 2002, 121).

The presence of marbles on working-class sites can be discussed in terms of the relationship of the home to the outside world and the relative identification of each of these arenas with different genders. Marbles was an outdoors, mobile, and social game, and it seems to have been largely practised by boys (Yamin 2002, 123). While providing entertainment, it also introduced certain social values whereby fathers could consider themselves free from household responsibilities and prefer the company of friends and peers over family (Yamin 2002, 123). This is particularly interesting in the present context, as the argument has been made for a similar bifurcation of working-class life across most of northern Europe, with male culture sharply oriented away from the dwelling (Glendinning 2003, 118). This process, whereby women were increasingly excluded from pubs and, in the male ideal, confined to the home, and whereby men came to spend less and less time at home, beyond eating and sleeping, seems also to have been true of mid nineteenth century Glasgow (Fraser 1996, 302).

So, if we are to gain a full understanding of gender relationships and domestic life, we must also seek to understand pub culture and the related subjects of alcohol and tobacco consumption and temperance, one of the most prominent social and political movements of the Victorian era. Pubs are highlighted here not because other forms of entertainment and socialising, such as the theatre or music hall, were unimportant, but because such other establishments have not been identified on the M74 route.

Inn and tavern sites can produce large assemblages of artefactual material, as well as evidence of demolished structures and other features. This has been demonstrated in Glasgow for the late eighteenth century Saracen's Head (Pollock 1992) and for seventeenth and eighteenth century sites in England (eg Fryer & Shelley 1997; Pearce 2000). However, if the character of nineteenth century domestic sites in Glasgow and elsewhere and the nature of the deposits and features at such eighteenth century inns are anything to go by, pits, wells, and other cut features containing rich artefact assemblages are also a distinct possibility for nineteenth century pubs. Analysis of pub archaeology can be undertaken in comparison with evidence of drinking and smoking habits in and around the home, and this should give a fuller picture of variant social forms of these activities.

From domestic assemblages, as opposed to pub assemblages, the issues of alcohol and tobacco consumption and temperance have been the subject of archaeological discussion in America. As in Britain, temperance organisations in mid-nineteenth century America, deploying a rhetoric deeply rooted in middle-class American ideology, stressed total abstinence from alcohol and tobacco as means of freeing the impoverished working classes and immigrant groups from the bonds of addiction and as a remedy for many social ills (Reckner & Brighton 1999). The movement became a locus for class-based social control and the site of social conflict, especially as it had strong anti-Catholic and anti-immigrant overtones.

Middle-class assemblages from New York are considered to more accurately reflect alcohol and tobacco consumption than working-class assemblages, as consumption in this regard was more restricted to the home for the middle class (Reckner & Brighton 1999, 72). Some middle-class houses do show a complete absence of alcohol-related vessels, but beyond this no consistent pattern of middle-class consumption is evident, with other sites showing moderate alcohol use and with all sites yielding evidence of tobacco use (Reckner & Brighton 1999, 73-75). Smoking at home is implied by the careful curation and apparent long-life of clay tobacco pipes, artefacts that break easily when carried around and that do not tend to survive use well. One house had types of pipe dissimilar from the usual high-quality forms found in middle-class contexts, suggesting some flouting of social convention, but to a limited extent as these pipes would have been smoked in private, in the home. In general, pipes and snuff were more associated with the working class, and middle-class propriety seems to have favoured chewing tobacco, if the number of spittoons found in excavations is anything to go by (Reckner & Brighton 1999, 81). Overall, it would seem that, despite temperance rhetoric, a level of alcohol and tobacco use was accepted amongst the middle class, providing the user observed certain codes of decorous behaviour.

In contrast, the Five Points district of the city was targeted by temperance reformers, and historical sources do indicate a difference in culture there: alcohol was perceived as a relatively safe drink in comparison to water; its use was socially acceptable; tobacco was also held to have health benefits; and, both German/Polish and Irish tenement dwellers spent much of their leisure time out of their homes, in

the streets, saloons, and theatres, and had developed pub culture as a central aspect of their lives (Reckner & Brighton 1999, 74-76). This said, archaeological excavations revealed evidence for temperance on one site (Reckner & Brighton 1999, 79). This included a cup bearing the image of an Irish-Catholic temperance reformer with a legend linking temperance to industry and prosperity. The cup displayed no use wear, implying it was used for display. This site also returned a higher than usual number of soda and mineral water bottles, possible soft-drink substitutes for alcohol, and a specific type of pitcher probably used in serving fruit drinks like lemonade. Working-class temperance did exist here, then, but it existed on its own terms, with the dominant middle-class Protestant movement being passed over for an Irish-Catholic alternative. Other households seem to have indulged in moderate home alcohol use, and alcohol-related assemblages from the wealthier working-class area of Greenwich Mews, housing native-born artisans, show that consumption in the home there was virtually identical (Reckner & Brighton 1999, 80). This may imply that the temperance rhetoric regarding immigrants and the lower working classes may be unfounded, though a greater understanding of extra-domestic drink culture is necessary to pursue this point. Elsewhere, as in the company workers housing at Boot Cotton Mills in Massachusetts, strict company rules on alcohol use do appear to have been flouted by the workers (Reckner & Brighton 1999, 80). Furthermore, the combined evidence from domestic sites in New York does show greater moderation in alcohol consumption in middle-class areas than in working-class areas (Reckner & Brighton 1999, 81). However, the archaeology has at least shown that class behaviour in this regard was not homogenous, and that historical stereotypes are just that, stereotypes.

5.5 *Conclusions*

From the above, the general potential of recent period archaeological remains, both above ground and below, domestic and industrial, should be clear. Consideration of previous archaeological works has also served to identify several general research themes of wide relevance: industrial technologies/processes, works operations, the working environment, and working practices and conditions, and the social aspects of industrial production; urban landuse, domestic industry, consumer behaviour, everyday political activity, class differentiation and conflict, cultural, ethnic, and national identity, gender relationships, popular culture, and others. These themes are not only significant to our understanding of the recent past, but are of enduring importance to our understanding of the modern world and modern society.

Undoubtedly, our future understanding of such themes in a Scottish and Glaswegian context will vary somewhat from the above examples. Indeed, the identification and interpretation of such meaningful variation is a primary aim of historical archaeology.

It is hopefully also clear that we should not just recognise the potential of archaeological buildings and sites but, where this potential seems likely to be realised, we must record and excavate with adequate rigour and from a position of understanding the specific significances of archaeological data for historical understanding. This in mind, the next section will outline a recommended research framework for the archaeological component of the M74 Completion and put forward a general methodology statement.

6.0 Proposed Research Framework and General Methodology Statement

6.1 *Research Framework*

Following the sections above, it is now possible to detail a proposed research framework for the archaeology of industry and urban life in Scotland, and in particular for Glasgow and the M74 route (many of the issues outlined below have already been highlighted in a British context by Keith Matthews; Matthews 1999, 172-176). The research themes and questions forming this framework have a wider significance beyond the M74 Completion project, but they are pertinent in this specific case, following a consideration of the specific archive sources and archaeological resource for the route. These themes and questions have also been promoted as they will allow the archaeology of Glasgow's recent past to be placed in the wider context of historical archaeology in other areas and countries, to feed into established areas of historical research on Glasgow, and to address issues of ongoing and fundamental contemporary concern.

The framework is divided into three parts: general; industry and transport; and domestic life. There will, of course, be instances where it will be possible and necessary to link the research themes of industry and transport to those of domestic life. Indeed, there may even be the potential for direct links to be established between individual domestic, industrial, and other sites and buildings. The Govan Iron Works (site 22) and its related workers' housing at the Lower English Buildings (site 23) is a clear example. A further example may be in the Kingston area, where various industries lay adjacent to tenements that probably housed their workers. Just to the west lies Charles Rennie Mackintosh's Scotland Street Public School, open to the public as a museum. It may be that some of the school's pupils lived in the adjacent tenements and had family members in the local industries, where they may later have worked themselves. Here, the investigation and recording of both the working and the domestic environment will be complementary and connected. There is also the potential for enhancing our understanding of the school museum by adding to our understanding of its local environment and life for its pupils outside of the classroom.

The recommended themes and questions detailed below are highly significant and represent the main anticipated areas of research. However, other questions and relationships will undoubtedly arise as further work is undertaken. The following research framework should be open to modification and should not restrict or constrain the identification and pursuit of any additional, significant avenues of research identified in the course of future work.

General

| <i>Theme</i> | <i>Principal Questions</i> |
|--|--|
| The nature of the modern archaeological resource | For Scotland, and Glasgow in particular, what is the nature of the archaeological resource for the recent past? What factors have affected the preservation and investigation of this resource? |
| History and archaeology | What is relationship between history and archaeology in understanding the most recent past in Scotland? What are the particular advantages and drawbacks of each source of information and how best might they be combined? |
| Historical archaeology in contemporary society | What is the role of the historical archaeology of the recent past in contemporary society? In what ways is the archaeological resource a significant asset in education and understanding of the past? What contemporary issues must be addressed by the archaeology of the modern era and how best should these issues be approached? |
| Scotland in national and global context | In what ways can the archaeology of industry and urban life in Glasgow and Scotland as a whole inform us on wider historical questions and processes? |

Industry and Transport

| <i>Theme</i> | <i>Principal Questions</i> |
|-------------------------------|---|
| Technology/process | What is the evidence for technology and industrial processes? How can this evidence inform us on technological change and continuity, relative efficiency, the diffusion of techniques, and other relevant questions? |
| Works operations | What data exists on the operations of the industrial works? How did works layout relate to the functions of industrial production and what other factors, such as workforce surveillance, might have been important? How did the wider industrial landscape, including transport features, operate as an inter-related whole? |
| The work environment and work | What evidence is there of the work environment and work |

| | |
|--|--|
| practices | practices and how does this allow new understanding of the social aspects of production, such as working conditions, health and safety, and the independence, or not, of the industrial worker? |
| <i>Theme</i> | <i>Principal Questions</i> |
| Intra-industry variation | To what extent did the above factors vary within an industry? How do we explain this variation and how did it affect the lives of the different workers? |
| Inter-industry relationships and comparisons | Beyond specific technologies, what differences or similarities were there between different industries and their operation? What implications did this have for those working in the different sectors? Can we identify and study direct or otherwise meaningful relationships between different industrial sectors? |

Domestic Life

| | |
|--------------------------------------|--|
| <i>Theme</i> | <i>Principal Questions</i> |
| The archaeology of domestic life | What is the nature of the recent archaeological evidence on domestic life and the domestic environment in urban Scotland? |
| Sanitation and health | What archaeological evidence is there in relation to the issues of sanitation and health? How does this further our understanding of these issues? |
| Consumerism | What were the factors influencing the choice of consumer goods? How did this choice vary between different groups and through time? In what way does the composition of artefact assemblages and the evidence of other sources demonstrate domestic behaviour? |
| Gender | How did gender relationships operate and change through time? What role did the domestic environment and material goods have in this process? |
| Class | What evidence is there for variations in behaviour between different socio-economic classes, and in what ways is class behaviour similar? How did the differential use of material culture and differences in the domestic environment act to create and maintain such differences and with what implications? How, in practical terms, were classes constituted, and to what extent does this method of social typology do justice to actual social interaction? |
| Cultural differentiation | Is there any evidence for behaviours specific to distinct cultural groups? What was the context for such difference? |
| Home, the workplace, and social life | What was the relationship of domestic life to life in the wider world, in terms of leisure activity, working life, and any other relevant contexts? Are there specific instances on the M74 route where the archaeology of workers' or managers' homes can be linked directly to the archaeology of their working environment? In what ways does this produce a more holistic understanding of life in the industrial city? Where and how might the archaeology of the route be linked to the evidence |

| | |
|--|---|
| | of other buildings and sites in the city? |
|--|---|

| <i>Theme</i> | <i>Principal Questions</i> |
|-------------------|---|
| Domestic industry | What evidence is there of continuing domestic industry in the industrial era? How are we best to understand the ongoing significance of domestic production? |

6.2 Excavation

Many previous excavations on industrial and other recent historical sites have failed to realise the potential of these sites as they have proceeded with an incoherent methodology. Often this is below the standards established for the excavation of earlier period sites, and this practice continues despite the publication of numerous relevant guidance documents and discussions of best practice. It is still too frequent to encounter situations where potentially significant structures and deposits are ignored and go unrecorded, where appropriate sampling strategies are not employed, or where potentially significant finds assemblages are discarded altogether or sub-sampled with no philosophy other than the reduction of the number of finds retained or the retention of decorated ceramics on the wrong assumption that undecorated wares are of no value. This section outlines some key excavation issues as a guide to best practice. It is not exhaustive, as each individual site will require its own particular strategy, formulated as the nature of the resource becomes evident, in order to ensure the best recovery of evidence. There is, therefore, no substitute for the presence of appropriately qualified and experienced members of staff on the project team who are capable of recognising the potential of industrial and modern domestic sites and implementing appropriate recovery and recording strategies.

One main conditioning factor for excavation strategies on industrial sites is the need to recover and record evidence of industrial processes and technology. Such evidence can take the form of structures, from whole buildings to individual machine bases, and related features, and certain forms of structure will give specific evidence on the technology with which they were associated (Cranstone 1992, 123). It is therefore important that all structures encountered are recorded in considered detail (Palmer 1990, 280).

Technological information can also be derived from less obvious features, such as sockets, openings, iron fittings, and wear marks (Cranstone 1992, 124). It is necessary to look closely for evidence of sequence, changes of use, and layout, and recording may be necessary down to the level of the position of nails or spikes driven into a wall, score marks produced by the repetitive action of a machine, or heat damage that may provide information on operating temperatures and, even, chemical conditions (Cranstone 1992, 124-125; 2001, 185).

Significant evidence of industrial technology and processes is also provided by process residues, such as slags, waste metal, refractory materials, and much besides. Sampling of such residues is common practice, and to be of maximum value there are three main points to bear in mind (Cranstone 1992, 123-124): first, the precise stratigraphic context of the sample is crucial; second, interpretable process residues are not always visually obvious, and an appropriate sampling strategy for deposits potentially carrying such residues is vital; and, third, spatial variation within a residue, both vertically and horizontally, may prove significant, and the sampling strategy must allow such variation to be identified.

A well-considered sampling strategy is thus vital on industrial sites. This should be formulated with the input of an appropriate specialist (Cranstone 1992, 124; Starley 2002) and specific procedures may need to be put in place for the care and curation of particular industrial samples (Davis & Starley 2002).

Close vertical and spatial control in the recording of industrial process residues is also informative in terms of site operations and working practices, identifying particular activity areas for example. Operations and practices should be further considered by recording the layout not only of individual buildings, but also of the site as a whole. Excavators must also be aware that many industrial sites also contain ephemeral structures that have interpretative importance (eg robbed timber structures, structures indicated by stains or wear patterns), and these may require higher standards of excavation to recover their detail (Cranstone 1992, 122-123). Such ephemeral detail may be the only surviving evidence of an important and previously prominent feature, such as a site tramway or railway (Cranstone 2001, 185). In

considering the operation of a works, it may be easy to concentrate on the obvious structures or to solely target structures shown on historical plans. However, presumed blank areas may contain important and less obvious evidence of the functions carried out and the character of the working environment. This is not to say that it is necessary to excavate a large industrial site to a consistent level of intensity. Rather, the full extent of the excavated area must be given due consideration, and identified features then targeted to the appropriate level of intensity.

Non-primary deposits can also prove informative. Dumps of material, such as slag heaps or pottery waster dumps, require careful recording and some of these deposits may require sampling for the recovery of micro-residues (McDonnell & Starley 2002). Ideally all slags, residues, or other waste deposits would be retained, but where the volume of material is so great that sub-sampling is necessary this should only take place in consultation with an appropriate specialist and on a systematic and considered basis. For comparative and analytical control purposes, sampling of deposits spatially removed from primary industrial activity areas may be necessary (McDonnell & Starley 2002).

Non-primary deposits are not restricted to intentional waste dumps or similar features. The use of a mechanical excavator to remove post-abandonment burden is often fully justified, but such a strategy should not be implemented without due consideration of the nature of such deposits (Cranstone 1992, 122). While rubble, made-ground, or topsoil deposits may often be removed rapidly with only outline recording, previous excavations have suggested that some post-abandonment deposits can be structured in a meaningful way, evidencing a collapsed wall and the original location and character of a previously standing structure, for example (Cranstone 1992, 122). Some such deposits thus require careful excavation and detailed recording. As noted for the case of Bell's Pottery in section 5 above, fill deposits unrelated to the operation of an industrial site can still contain important information, including previously unknown products and details of technological operation.

Artefact recovery and recording strategies must also be rigorous, consistent, and coherent. There is a general need to develop reference collections of industrial products, and mundane artefacts such as undecorated ceramics are either already useful in provenance research and for dating purposes or require greater collection and understanding to inform these aspects of archaeological investigation (Palmer 1990, 280; 1991, 28-29). As far as is possible, all artefacts should be recovered and retained. Sub-sampling should only take place as advised by appropriate specialists and in consideration of the implications of such sub-sampling for understanding of the site. Close spatial and vertical control should be maintained in recording artefacts, as the information thus derived can prove useful in understanding the technological, operational, and other aspects of a site.

Many of the above points can also be applied to urban domestic sites. Post-abandonment deposits can be removed rapidly with outline recording in many cases, but this should not take place without due consideration and care. Such deposits should first be characterised and an informed decision taken on the appropriate method of excavation. Individual structures and features should be excavated and recorded with due care and consideration of the potential information they can yield. The fill deposits of cut features such as wells, privies, and refuse pits can be extremely rich and informative and should be excavated and recorded under conditions of close stratigraphic, vertical, and spatial control, with excavation in spits of deep deposits where necessary (cf eg Wheller 2000b).

Artefact assemblages and environmental remains from such *in situ* deposits are vital in addressing many of the research questions outlined above and considered recording and recovery strategies will need to be implemented. Collaboration between excavators and relevant specialists is advisable to achieve appropriate sampling strategies. For instance, sampling for environmental remains is determined by the perceived ability of such remains to address the relevant research aims and by the likely presence of relevant remains (English Heritage 2002, 18). A general systematic sampling strategy can be agreed, but mechanisms must be in place to address any problems in implementing this strategy and to allow adaptability as new information arises (English Heritage 2002, 24). It is important, as far as is possible, to recover and retain all artefacts. It is a common assumption that artefacts on recent-period historic sites are only of use for dating purposes, and thus there is only a need to retain a minority of finds, such as distinctively decorated ceramic wares. However, more mundane artefacts, including nails and undecorated ceramics, can also prove useful for dating purposes. Furthermore, all forms of artefact have the potential as individual objects to contribute to the wider research questions outlined above. It is also important, in approaching these research questions, to fully understand the composition of the assemblage as a whole, as the ratio of one ceramic form to another, for example, may be significant.

Beyond obvious and distinct features, excavations must consider the value of recording the layout of the site as a whole, the importance of characterising more extensive soils, and the appropriate strategy for the recovery and recording of finds and samples across such extensive deposits. As we have seen, environmental samples from garden and other back-lot soils can prove valuable. The distribution of artefacts may provide evidence for and characterise particular activities and behaviours, related to domestic industry, refuse disposal, or whatever else. On the question of sanitation, for example, the absence of refuse in yard areas signifying that they have been kept clean is as informative as the presence of rich artefact assemblages requiring intensive study (Crane 2000, 36). To understand patterns of sanitation behaviour, it is important to be able to be confident that any absence of evidence for refuse disposal in domestic contexts reflects a reality and is not a function of a lack of appropriate and sufficiently detailed excavation and recording programmes. Due care and attention thus needs to be paid to the excavation of extensive deposits, and close spatial, stratigraphic, and vertical control must be maintained in recording finds and samples from these deposits.

Three forms of excavation were recommended in the initial M74 report (GUARD 2003, 43-44). Only one further recommendation will be made here in this regard. For full control over the archaeological mitigation, where considered necessary in specific instances, previous recommendations for watching briefs have been replaced by prior evaluation (see Part 4 of this report). This change should also serve to minimise conflict between the archaeological work and the motorway construction programme.

6.3 *Standing Building Survey*

Determining the level of standing building survey required for a given building relies on several factors. The survey should be in proportion to the building's significance, but it should also be in proportion to the level of impact, with destruction almost certainly requiring a full record (Dallas 2003, 12-13). The type of survey also depends on the type of building and any other reasonable considerations, such as value for money (IFA 1999, 11). The appropriate type of survey should be selected to achieve the aims of archaeological building investigation and recording, defined as a programme of work intended to establish the character, history, dating, form, and archaeological development of a specified building, structure, or complex and its setting (IFA 1999, 3).

Most building records will comprise a written record and a visual record, with drawings, photographs or both, and four distinct levels of recording have been identified to aid in the specification of recording programmes (RCHME 1996). From the least involved to the fullest record, these are:

- 1) a visual record, supplemented by the minimum of information needed to identify the building's location, age and type. This is the simplest record, and will typically be adopted: when the aim is to gather basic information about a large number of buildings for statistical sampling; in a pilot project; to identify buildings for planning purposes; and, whenever resources are limited and much ground has to be covered in a short time. This level generally comprises photography of exteriors only, though the interior of a building may sometimes be seen in order to make a superficial inspection and to note significant features. A basic written account will be maintained and perhaps a sketch plan will be drawn.
- 2) a descriptive record, made in similar circumstances to level 1, but when more information is required or where a building is not judged to require a fuller (level 3 or 4) record. Both the exterior and interior will be seen, described and photographed. Examination of the building will produce an analysis of its development and use. The record will detail the conclusions reached, but will not discuss the evidence on which this analysis is based. A plan will be made and the possibility of publication must be borne in mind.
- 3) a fully analytical record, comprising an introductory written description followed by a systematic account of the building's origins, development and use. The record will include an account of the evidence on which this analysis is based, allowing the validity of the conclusions to be assessed. It will also include all the visual records that may be required to illustrate the building's appearance and structure and to support a historical analysis. Information contained in the record will, for the most part, derive from analysis of the building itself, without extensive use of other sources, and the record will not discuss the building's broader stylistic or historical context and importance at any length. It may, however, form part of an extended survey of a number of buildings which will aim at overall synthesis, in which case the use of additional source material may be necessary and a broader historical and architectural discussion of the buildings as a group may be required.

- 4) the most involved level of survey. This level of record is only employed for buildings of special importance. The range of drawings may be greater than at other levels. Level 4 will go beyond the analysis and interpretation employed at level 3, and a level 4 record will draw on the full range of available sources of information about the building and discuss its significance in terms of architectural, social, regional or economic history.

While these four levels provide a useful guide, it should be remembered that it is not possible to prescribe forms and levels of record for all circumstances, and it may be necessary to vary the content of the record in a given case (RCHME 1996, 1). Also, depending on the character of the building or complex, it may be appropriate to record different parts at different levels of intensity (RCHME 1996, 2). In this instance, the value of the individual records may be materially enhanced by a separate record dealing with the history and evolution of the whole (RCHME 1996, 2).

It should also be remembered that the initial aims of a building investigation and recording programme must be flexible in practice, and experience during the survey may require modification of the procedures employed and the exercise of professional judgement in this regard (IFA 1999, 11; RCHME 1996, 2, 5). Also, the opportunity should be taken, where possible, to investigate and record concealed fabric or fresh evidence of whatever form upon its exposure (Dallas 2003, 13).

As seen with levels 3 and 4 above, it is often appropriate and necessary to research other available sources of information in carrying out a comprehensive survey. Whenever possible, the recording process should be supplemented by other sources of information: documentary sources, oral evidence, pictorial evidence, prints, photographs, architectural plans, maps, and previously published analyses (Dallas 2003, 14, 139).

6.4 *Photographic Survey*

For those buildings not directly impacted by the motorway, it may be that a photographic survey is required. A photographic survey is a very full visual record accompanied by a brief written account, but without an analytical or drawn survey at a comparable level of detail (RCHME 1996, 5). This type of record will be an appropriate, rapid, and sufficient way to record the settings of significant buildings, where these are to be affected by the motorway construction.

As outlined in section 2.2.3 above, the definition of setting is ambiguous and the subject of debate. Some would take setting to mean 'historic setting' alone, while others would counter that setting also encompasses 'contemporary setting'. In both cases, not all views of or from a building need necessarily be significant and, thus, form part of the setting. It is necessary to understand just what it is in the setting of a given building or monument that is important.

The only way to do this is to combine desk-based research on the building, monument, or other feature and on its historic and contemporary surroundings with a visual assessment of the impact on setting that a particular development will pose. However, this is a time-consuming process, and it is considered unnecessary in the present context. The route of the motorway is defined, and the direction of visual impact is thus securely known. Views will, in many cases, be restricted as the motorway passes through a built-up, inner-city area. For these reasons, a general photographic survey both to and from the building, monument, or other feature in the direction of the motorway impact should be able encompass all the possible significant views affected. This will comprise general views taken in all affected directions, and detail views of any features identified as being of particular interest while undertaking the survey in the field. A brief written record should also be created to allow identification and interpretation of the views.

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