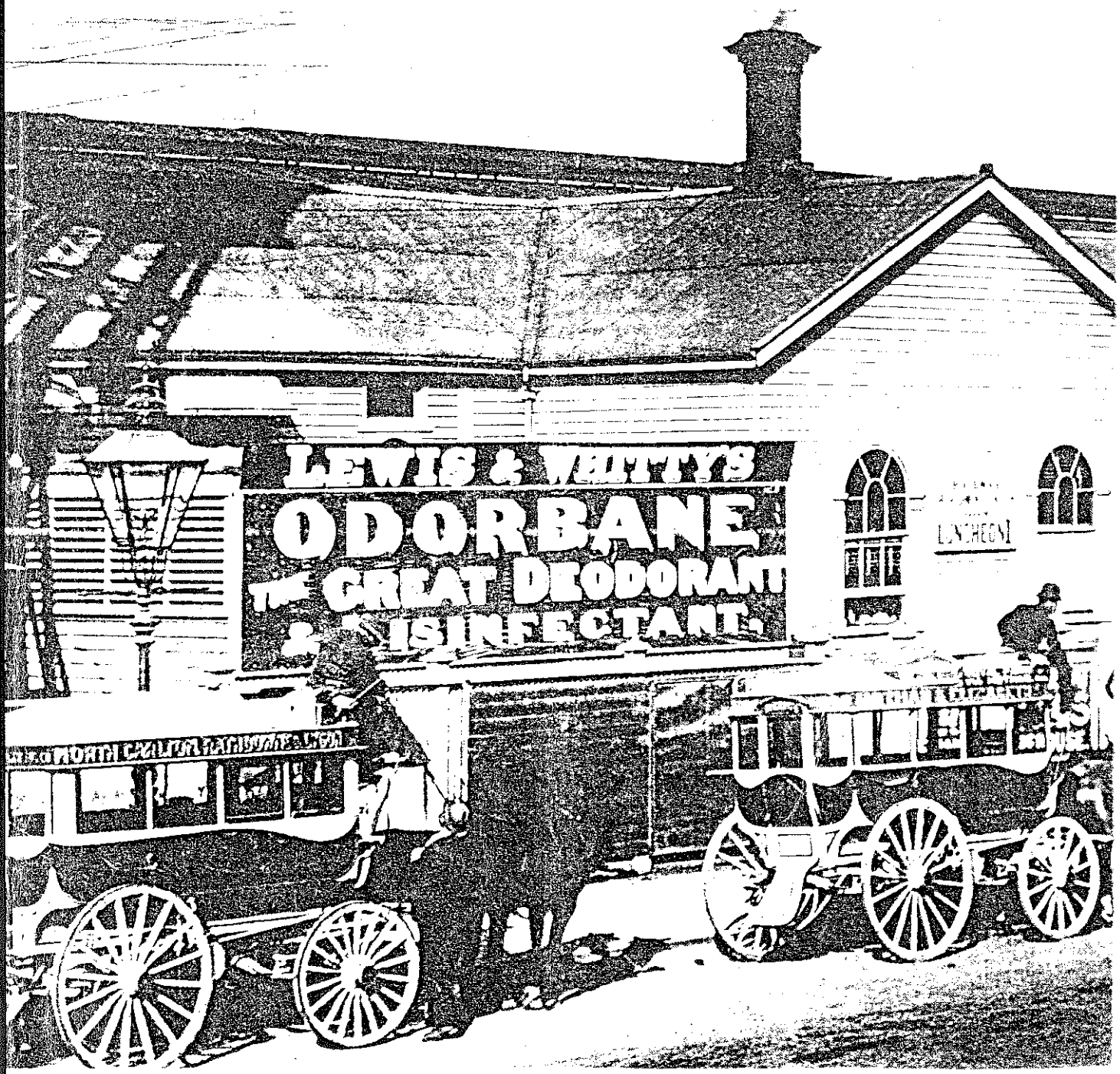
Northern Suburbs Factory Study

Gary Vines and Matthew Churchward



1992

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by

Gary Vines and Matthew Churchward

HISTORIC BUILDINGS COUNCIL

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LIVING MUSEUM OF THE WEST

Part One: History and Analysis

Historic Buildings Council and
Melbourne's Living Museum of The West Inc.

1992

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By Gary Vines and Matthew Churchward

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The Modern Shoe Company was a two-storey, brick building sitting squarely on a Collingwood street corner. No area of grass surrounded it, no yard ... it was an upward extension of the asphalt street, the bluestoned gutter and the pounded roadway. The building was welded to the earth covering on which it stood and through it to other buildings, to other streets, to the city itself. A hundred factories grew along the streets of the poor surrounding it. They elbowed each other for room in cramped alleys; steam and laden air walled upwards from their breathing windows and doors; their chimneys flung scarves of smoke across the narrow sky ...

Allan Marshall, *In Mine Own Heart.*

Acknowledgments

This study has been funded by the Victorian Historic Buildings Council and was co-ordinated by staff of the Heritage Branch of the Department of Planning and Housing. Melbourne's Living Museum of the West Inc. has been the principal consultant on the project with Gary Vines and Matthew Churchward producing the actual Report. Matthew Churchward is author of the Historical Overview, Section 2 of Part One, while Gary Vines prepared Part Two containing the citations and remainder of Part One. Both Gary Vines and Matthew Churchward contributed to research on individual sites.

Assistance has been received from members of the historical societies in several of the municipalities covered by the study both in Melbourne and the country towns along the Hume Highway. Particular acknowledgment needs to be given to the previous area conservation studies conducted in the study area by Andrew Ward in Collingwood, Chris Johnston in Brunswick, and by Jacob Lewis Vines in North and South Fitzroy. Andrew Ward's Collingwood study has been especially useful as it contains the most comprehensive assessment of industrial sites in any municipality to date. Sections of his citations have, in many cases, been directly quoted to avoid duplicating research. However, for the sake of ease of reading parenthesis have not been used to identify such passages.

Contents

Part One: History and analysis

List of Maps

List of Tables

Part One: History and analysis

1. Introduction

Scope of the study

The principle aim of this study is to make a comparative assessment of buildings, complexes and associated structures of manufacturing industry in Melbourne's northern suburbs and along the transport corridor through Victoria's north east to the New South Wales border at Albury. The scope of the study is broadly defined within geographical, temporal and functional limits as follows:

Study area

The study area encompasses the municipalities of Collingwood, Fitzroy, Brunswick, Northcote, Coburg, Preston, and Broadmeadows. The study area also includes sites along the old course of the Hume Highway or Sydney Road and along the North Eastern Railway in such towns as Wallan, Kilmore, Broadford, Seymour, Euroa, Benalla, Wangaratta, Chiltern and Wodonga.

The study has not, however, attempted to assess all manufacturing sites within the towns along this route, but only to identify those places with a particular link with Melbourne, either in terms of a physical connection such as a railway siding, or a functional connection such as a factory established to provide goods to Melbourne as a final market or point of export. In some cases the link is very tenuous as it has not been possible to establish the particular destination of the factories' products or the source of their raw material or capital.

The northern corridor is in fact two distinct routes which diverge considerably in places. Just north of Melbourne the highway runs through Kilmore but the railway passes about 20 km to the east through Wallan and Wandong at the foot of the Mt. Disappointment range. Likewise, the railway and road diverge in the north where the original Sydney Road once ran through Beechworth and Yackandandah while the railway took a more westerly route through Chiltern and Barnawatha.

As the projected number of sites in these country towns was expected to be fairly low (less than 30), the scope of the project was not too extensive in this respect. However, in the inner northern suburbs - Collingwood, Fitzroy and Brunswick - the preliminary survey of sites suggested that several hundred factories would be found which would put a considerable strain on the available time and budget for the project. It was therefore necessary to be somewhat arbitrary in selecting sites for assessment within the set criteria, particularly in relation to sites of the later part of the time period under study.

Time Limits

The sites examined in the survey were to be limited to the period up to 1930, that date being seen as a suitable cut off point, justified in terms of the historical watershed of the Great Depression of 1929-30. This was a period of vast numbers of unemployed and factory closures. Following the recovery in the later 1930s and during and after World War II manufacturing underwent changes in terms of both the distribution of factories and technology they employed.

However, in certain circumstances, sites of later date have been included where they can show a continuity of operation from an earlier period, for example where a factory has been rebuilt on an old site, or where a building of a later date demonstrates the continuing tradition of the particular

industry or business. A good example is the British United Shoe Machinery Co. building in Alexandra Parade. This dates from the late 1930s, but the company had occupied two previous sites in Fitzroy going back to the early 1900s and had grown into the largest supplier of shoe machinery in Victoria by the 1930s.

Types of sites

The types of sites which were examined in the study were those which can be regarded as manufacturers of goods and products intended for commercial sale either through export, wholesale or retail to the general public, or in the case of part-processing, to other companies for further processing or manufacture. Another factor in selection of sites was the scale of operation. Where a company manufactured on an industrial scale or using mass production techniques it was included although those manufacturers which were basically cottage industries or crafts were not included. In this respect the boot factory employing moderate to large numbers of workers usually on piece work was included but the single operator boot makers were not.

The classification of factories in this way is to some extent subjective but may be more specifically defined in terms of the original Factories Acts, that is, those places employing more than ten people (later amended to four). The *Statistical Registers* used four as the minimum number of employees for classification as a factory. Another definition can be made in terms of their level of production. In general, the factories included in this study would have produced more than one per cent. of the total State production of their particular class of product. A brief glance at the State's manufacturing statistics appears to confirm this as a rough measure of industrial scale manufacturing while the definitions of factories under the various Factories and Shops Acts use a similar method of minimum numbers of employees. In most cases, mechanisation and some degree of automation of the manufacturing process are characteristic of these factories.

Both primary and secondary manufacturers are included in the survey of sites. Primary manufacturers are, for the purposes of this study, defined as those which process raw materials such as potteries and brickworks, flour mills etc. while secondary manufacturers are those which use partly processed raw materials such as metal manufacturers and clothing factories. The smaller domestic manufacturers such as tailors, bakers, bootmakers, blacksmiths, etc, have generally been excluded from the study. However, larger examples of these types of industries have been included where their scale is such to warrant classification as a major manufacturer, for example the Denton's Hat Factory in Abbotsford and Tip Top Bakery in Brunswick.

Likewise, industrial buildings indirectly associated with manufacturing such as stores, warehouses, offices, transport services, quarries, etc. have generally been excluded unless they are part of a larger manufacturing complex or have a specific connection with another site which meets the criteria for assessment.

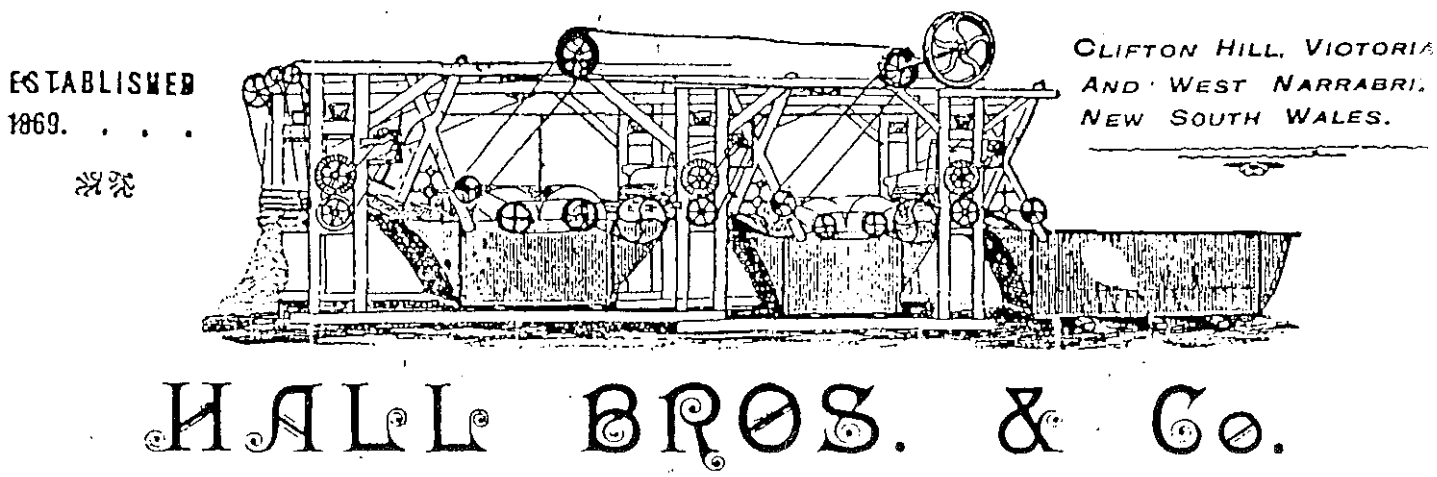
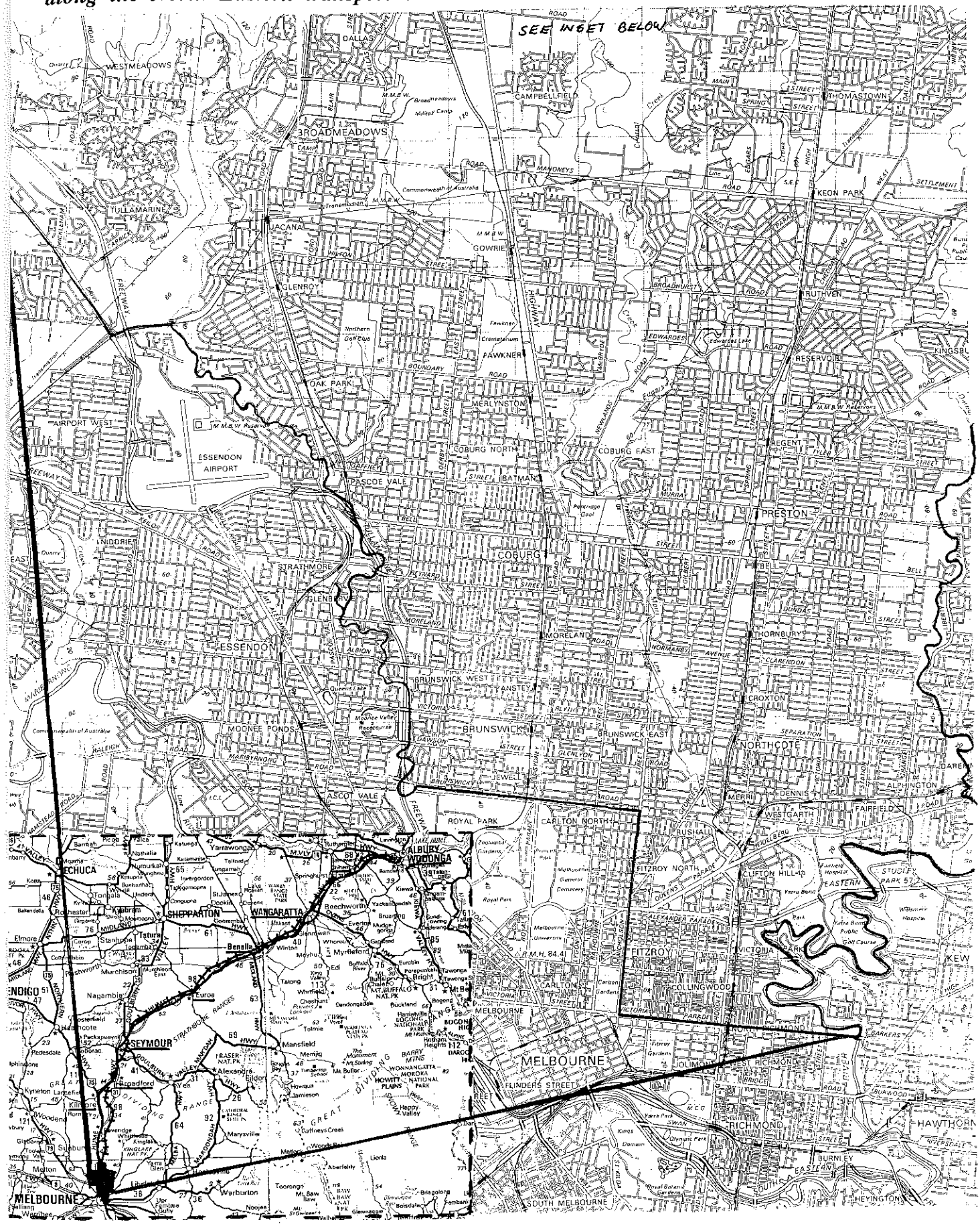


Figure 1. Location of the Study Area, Melbourne's Northern Suburbs and towns along the North Eastern transport corridor.



Examples of types of manufacturers

The following categories of manufacturers have been used as a guide to identification and assessment of sites. Examples of specific types of factories within each category have been listed along side each category.

1. Food Products and Beverages	brewers, distillers, cordial & aerated water manufacturers, food preservers, canners, ham curing, sausage makers
2. Clothing and Footwear	felters and hatters, boot and shoe manufacturers, shirt and clothing factories
3. Textiles	spinning and weaving mills, cloth finishing, knitting mills, hosiery mills, dyeworks
4. Metal & Engineering Industry	foundries, sheet metal works, wrought iron works, vehicle builders, engine works, agricultural implement makers, structural engineers
5. Animal By-products	boiling down, tallow melting, soap and candle makers, fellmongers, tanneries and leather works, manure works.
6. Timber Industry	sawmills, moulding mills, joineries,
7. Building Materials	brickworks, tileworks, potteries, clay pipe works, concrete works, monumental masons
8. Chemical industry	acid works, paint manufacturers, artificial manures, drug houses, paint, stain & varnish manufacturers

In some cases, an individual factory falls into two or more of these categories. Not all of the types of factories listed have been recorded although they all existed in the study area at some stage during the pre 1930s period.

Coverage of the survey

The survey has identified and assessed 292 sites with an additional 86 sites initially examined, but rejected as not meeting the study criteria. In several cases these rejected sites had in fact been demolished.

Of the sites examined, a better coverage of early surviving sites was obtained. Approximately 90 percent or greater of surviving nineteenth century structures in the study area which fell within the definition of factories have been assessed. About 80 percent of factories up the 1920s and about 50 percent of factories from the 1920s and 30s have also been assessed with relatively fewer of the total surviving factories from the later years in this period. It is also felt that all but a very few of the factories which are of importance at a state level, have been identified in the report, although in the absence of more detailed research into their social and historical significance, they have not necessarily been identified as of state significance. That is, some sites, but only a small number, have probably been underestimated in terms of their significance.

Method and criteria for assessment

The primary aim in assessing sites is to establish the comparative significance of sites in order to identify those sites of potential State significance. A secondary aim is to provide a context for further assessment of manufacturing sites in Victoria.

Significance of sites has been assessed in accordance with the ICOMOS *Burra Charter* which defines cultural significance as 'aesthetic, historic, scientific or social value for past, present and future generations'. The nature of industry, however, often precludes notions of aesthetic value or requires a quite different approach to our appreciation of aesthetics. For example, the towering soot-encrusted structure of a steel works or sugar refinery may instil an awe and admiration in viewers, regardless of their distaste of the dirt, smells and noise of the industry which it serves.

Within the realms of aesthetics, architectural value is another element which cannot be assessed using established models, although industrial buildings were occasionally erected in the grand architectural aesthetic of the period. The Spotswood Pumping Station, Aitken's Yorkshire Brewery in Collingwood and the industrial commissions of William Pitt such as Bryant & May, Foy and Gibson and the Victoria Brewery all demonstrate that our perception of industrial buildings as ugly and utilitarian is often misplaced.

Therefore, significance of factory buildings generally requires a different approach where the prime values are historic, social, and scientific, generally in that order. Characteristics which contribute to significance of a site can be summarised as follows:

A rare or exceptional example of a particular type of industry.

The site of technological innovation or outstanding achievement in the industry.

A site which played an important role in the history of the industry, eg. a pioneer in its field, an industrial leader, renowned for its progressive working conditions, etc.

An exceptionally well preserved and representative example of the particular factory type, or a site which best demonstrates the principals of a particular industrial process, eg. one with substantially intact original equipment or in a purpose-built building, etc.

A site associated with an important person or event where that association is somehow reflected in the surviving built fabric.

A site which reflects the wider historical development in the industry, such as the growth of mass production, the Garden Industrial Movement, etc.

A site which is closely connected with important historical developments outside of industry such as the brickworks which supplied materials for the building boom of the 1880s.

In all cases, attribution of significance is dependent of the survival of sufficient fabric to demonstrate the important aspect of the site. Whether this is the buildings, their equipment or other structures, the guiding principal should be how well the surviving fabric demonstrates the significance. For example a factory renowned for its progressive working conditions may retain elements such as original windows and vents providing natural lighting and ventilation, or amenities such as toilets and wash area, even though the machinery and fittings have been removed. Another example is the way the building envelope often reflects the arrangement of the plant within with turrets for elevators, changes in level which accommodated gravity feed of materials and supporting timbers which were strengthened to take the weight of equipment.

In selecting sites for assessment, the consultants found it impossible to make a street by street survey of the entire study area, or to conduct a comprehensive literature search to identify all factories ever erected in the study area, so a special survey strategy was developed to optimise the available time an resources.

First of all, key map sources were used to define the areas of factory concentrations prior to 1930. The MMBW Sewerage Plans at 160 feet to the inch cover the urban part of the study area and date from 1897 to the 1930s with the earlier dates covering the inner suburbs of Collingwood, Fitzroy and Brunswick. Factories can be easily identified from these plans by size and form. Building materials are also often included. These plans allowed us to identify all factories in the inner metropolitan area which existed at the time the map was drawn, in most cases around the turn of the century.

The Melbourne metropolitan area did not have universal planning controls or zoning regulations until recent decades, but two documents were prepared as earlier attempts at a comprehensive zoning plan. These were the Report of the Metropolitan Town Planning Commissions *Plan of General Development, Melbourne,* of 1929 and the *Melbourne and Metropolitan Planning Scheme* of 1954. Both of these documents make some attempt at defining the location of industry although only the major concentrations of factories are shown. Isolated sites were generally disregarded, for the intention was to consolidate industrial areas. Eventually these sites became the 'non-conforming uses' on the present planning schemes.

A comparison between the MMBW Sewerage Plans and the two planning schemes mentioned allows some assessment to be made of the distribution of factories in the period between the turn of the century and the 1950s. An additional comparison with the present planning scheme provides further areas of factories, but much of this is of very recent development.

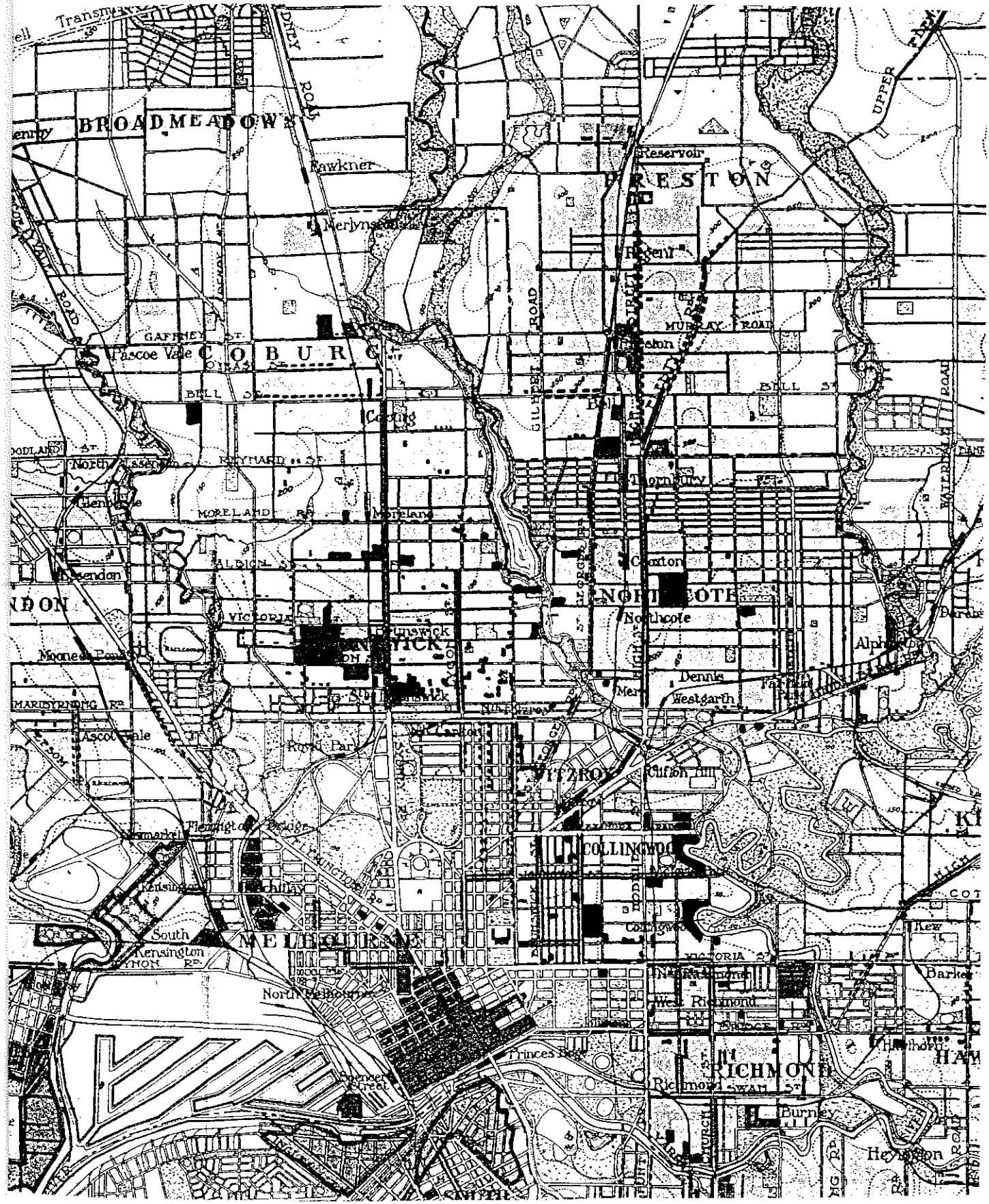
Secondly, a physical survey of areas of the most promising industrial areas was carried out at the preliminary stage. The major transport routes such as country and suburban railway lines, through roads and old stock routes such as Alexandra Parade were often preferred locations for industry. By checking the one or two blocks back from that route, existing 'non-conforming use' factories and factories converted to new uses such as offices and residences could be found, although some experience in recognising an old factory which had been renovated as a residence was sometimes necessary. Because of the compact nature and early date of development of the inner suburbs of Fitzroy, Collingwood and the south part of Brunswick, it was possible to make a street by street survey of much of these areas.

An initial list of possible sites was prepared and then checked against historical sources. The key sources were the *Sands & McDougall Melbourne, Suburban and Victorian Directories*, and other directories such as the *Wise's Post Office Directories,* particularly for earlier dates, and *Rate Books* for particular suburbs. Time constraints meant it was not possible to check listings for every year so checks were made for every five years between 1860 and 1930.

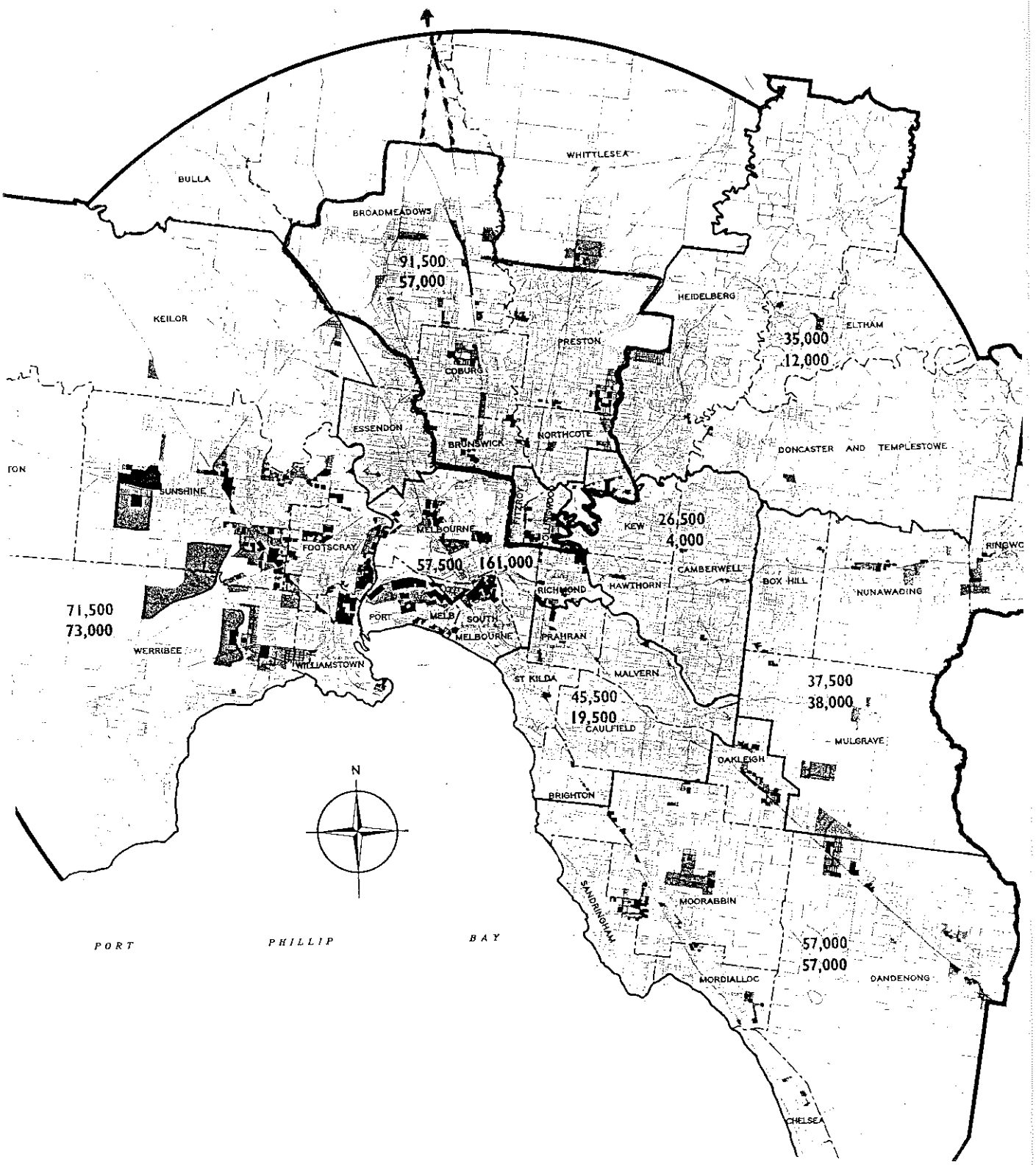
Armed with a list of potential sites and some historical information about when each site was occupied by a factory, it was then possible to return to the field and identify the surviving structures of significance.

It should be noted that considerable acknowledgment needs to be given to the existing heritage and conservation studies of the inner suburbs, particularly Andrew Ward's *Collingwood Conservation Study* 1988 and Chris Johnston's review of the Brunswick conservation study *Keeping Brunswick's Heritage* 1990. Where these are cited in the references for particular sites it can be assumed that the majority of information for these sites has been taken from the previous study with additional research only where the detail has been insufficient to assess the site in the context of Melbourne's industrial heritage. In most cases the sections on history and description are edited versions, and in some cases direct quotations of these studies, although for ease or reading quotations have not been identified.

Map 2 ***Industrial areas of Melbourne 1929, Source: Melbourne Town Planning Commission, General Plan***



Map 3 ***Industrial zones in Melbourne from the 1954 MMBW Melbourne Strategy Plan***



2. Historical context of manufacturing in Melbourne's Northern Suburbs. By Matthew Churchward

Introduction

Historically, manufacturing has made a major contribution to the State's economy for almost 150 years. From its beginnings with the first steam-powered flour mills and sawmills during the early 1840's, manufacturing developed rapidly during the immediate post gold-rush years. By 1871, there were some 1,745 factories in Victoria, employing 20,000 people (6.5% of the paid work-force), and producing every conceivable type of goods. By 1901, manufacturing had grown to encompass 3,300 separate establishments, employing 66,500, whilst by 1930, it had more than doubled again to include a total of 8,200 factories.

Broadly speaking, Victoria's main manufacturing development up to 1930 can be described by four general categories:-

1) Forward-Linkage Manufacturing

Victorian manufacturing began primarily with the forward-linkage industries, which concentrated on the basic processing of agricultural, pastoral and mining production. These included establishments such as flour mills, tanneries, wool washing works and fellmongers, ore crushing and smelting works. In addition, saw-milling & timber finishing works can be regarded as forward-linkage industries to the forestry sector.

2) Backward-Linkage Manufacturing

As primary industry expanded in Victoria, a number of new manufacturing activities developed to provide materials and equipment required by the primary producers. Included in this group are manufacturers of products such as agricultural implements & fertilisers for the agricultural industry, mining machinery, blasting powder and safety fuses for the mines, and saw-milling machinery, log jacks and tramway equipment for the forestry industry. In many cases, attention to the specialised requirements of primary producers operating in Victoria, gave local manufacturers an edge over importers of similar products.

3) Ubiquitous Urban-market Manufacturing

As Victoria's population grew and Melbourne became increasingly urbanised, an enormous consumer market was created for local manufacturers to exploit. In most cases manufacturers in this category used a combination of both imported and local raw materials and had no locational advantages other than their proximity to large markets and a limited amount of tariff protection. Products of this group of manufacturers included, clothing, boots & shoes, beverages, bricks & building materials, coaches and soap & candles. These were all basic consumer products which might be made in any part of the world where demand was concentrated enough.

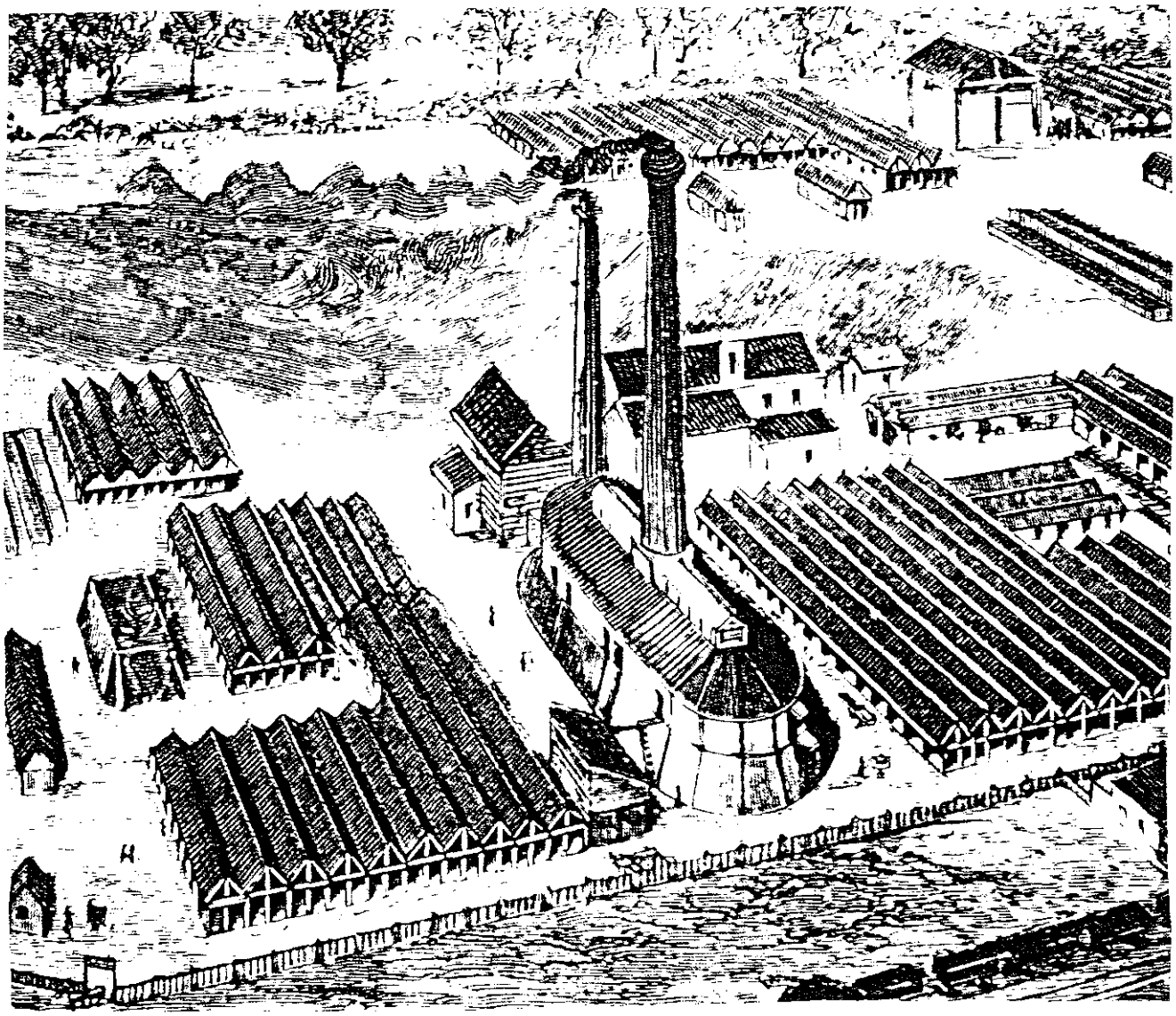
4) Protected & Government Stimulated Manufacturing

Victoria's early manufacturing development also included a number of specialised industries, that cannot be adequately described by any of the above categories. In many cases these exceptions might appear to fit more comfortably in the industrial scene in Britain or America, than in a colonial outpost like Victoria. In general these industries required large-scale capital investment and advanced technology. They produced specialised high-value products for which there were only limited markets in Victoria or Australia and thus depended on government support for their survival. Included in category are industries such as the woollen mills, paper mills and railway

locomotive manufacturers. Government support for these industries took various forms including, protective tariffs, tariff exemptions on specialised plant, bonuses and Government contracts.

It should be recognised that these four categories are included only as a guide to explain the major manufacturing developments in Victoria up to 1930, and are not intended to be mutually exclusive. Some manufacturing activities could be regarded as fitting into more than one of these categories, whilst in other cases their were direct links between manufacturers in the various categories. Boot & shoe making, was essentially an ubiquitous urban industry, but in Victoria the trade relied on local tanners for its main source of raw materials.

In general manufacturing development in Victoria, during the late nineteenth and early twentieth centuries, was essentially domestic in character with less than 10% of output being exported. Of the products which were exported in large quantities, most fall into the forward-linkage category and include such items as flour, leather, refined sugar, dairy products and preserved meat. The main exceptions were in apparel & slops, in which Victoria developed a significant export trade with New South Wales, Tasmania & New Zealand, and in machinery & agricultural implements which were exported to all Australian States and some overseas countries. After Federation in 1901, free trade laws between the various states saw the removal of all internal import duties and the Victorian manufacturing industry, particular in the clothing, boot & shoe and engineering sectors, expanded rapidly to supply Australia-wide markets.



Manufacturing in the Northern Suburbs

The northern suburbs of Melbourne have historically contained a significant part of Victoria's manufacturing industries, although statistically, their contribution prior to 1930 never represented more than 17% of the State's total manufacturing work-force and 10% of its manufacturing establishments. The manufacturing environment of the Northern Suburbs is tremendously diverse, with all of the major phases in Victoria's manufacturing development being represented, from the small, tightly-packed workshops of Collingwood, to the fully integrated textile mills of Coburg, and the vast modern industrial estates of Broadmeadows and Campbellfield. Table 1 demonstrates the comparative position of the Northern Suburbs and north-east corridor towns in relation to all Melbourne and Victorian manufacture.

Fitzroy & Collingwood were the first of the Northern Suburbs to attract manufacturing development, and the concentration of factories within these suburbs remained the most intense, with a greater number of factories during the period prior to 1900, than all other Victorian municipalities, except the City of Melbourne, South Melbourne and Sandhurst (Bendigo). As manufacturing grew in the northern suburbs, a steady expansion northward followed (or sometimes preceded) suburban development.

It is intended that this historical background will firstly examine thematically some of the major influences which contributed to shaping of the manufacturing environment in Melbourne's Northern Suburbs and the North-Eastern Transport Corridor, and then describe separately the major manufacturing developments in each of the municipalities in the study area up to 1930, pointing to some of the surviving manufacturing buildings which reflect these historical developments. The individual suburban areas are dealt with in order of their relative period of development as manufacturing regions.

Rural Economy & the Beginnings of Manufacturing

Manufacturing did not develop at the same rate in all regions of the northern suburbs and north-east transport corridor, but in most areas it began in the 1840's and 1850's and was initially closely linked to primary industry.

In Collingwood, tanners, fellmongers, and wool washers established themselves along the banks of the Yarra River during the 1850's. Further out, in Brunswick & Preston, manufacturing began with bacon-curing works connected with piggeries, whilst in the towns of Broadmeadows, Broadford, Kilmore and Wangaratta, manufacturing began with flour mills, which remained the only type of factory in many country towns until well after 1900.

Suburban Growth & the Building Booms

The demand for housing by gold-rush emigrants during the late 1850's & 1860's led to the subdivision and settlement of much of Fitzroy and Collingwood. Urban development brought with it the opportunity for new manufacturing development in these suburbs. Brick-yards and timber-mills were opened up to supply building materials, whilst the rapidly growing population created a large market for consumer products ranging from beer & cordials, to coaches, furniture, biscuits, vinegar, soap & confectionary. For many early manufacturers, Fitzroy or Collingwood provided an obvious choice of location offering the combined advantages of proximity to Melbourne and the availability of a large local pool of labour. These early industrialists were primarily the ubiquitous manufacturers, who provided for the needs of an urban population and depended on strong urban growth for much of their prosperity.

Brunswick was not extensively settled until after 1880, but it shared in the early post gold-rush building boom with the beginnings of a major brickmaking industry. By 1871, Brunswick had 43 brickyards, by far the largest concentration of any municipality in Victoria. The 1870's saw the introduction of steam-driven brick presses and the continuous Hoffman brick kilns, and a spread of the brickmaking industry into Northcote and Preston. When Melbourne's second major building

boom occurred during the 1880's, production of the Brunswick & Northcote brickyards rose from 54 to 276 million bricks a year.

Potteries, joineries, timber moulding mills and iron foundries of the northern suburbs also played a major role in the 1880's building boom, producing clay drainage pipes, chimney pots, doors, windows, iron lacework for verandahs and house fittings.

Tariff Protection

By the early 1860's the Victorian Government was increasingly being lobbied upon to introduce import duties on manufactured goods in order to stimulate manufacturing development within the colony and create additional jobs for the growing population. The politicians and manufacturers of Collingwood were amongst the colony's most vocal advocates of tariff protection.

Whilst it is difficult to qualify the extent to which import tariffs boosted Victorian manufacturing as a whole, the manufacturers of Collingwood and Fitzroy clearly benefited from the initial tariff legislation of the 1860's and 1870's. Under tariff protection Collingwood, and to a lesser extent Fitzroy, developed an extensive clothing industry with factories producing boots, shoes, hats and apparel.

Tariffs also opened up opportunities for manufacturers of a whole range of specialised products from carriage-axles, to cast-iron stoves, brooms, cigars, boot polish & dolls' prams. In 1862, Thomas Aitken established Victoria's first distillery in Collingwood, following the introduction of tariffs on imported whisky and brandy. The rapid growth of Fitzroy and Collingwood's tariff-protected industries helped Victoria to surpass New South Wales as the leading manufacturing colony in Australia by 1870, and to retain this position for the next 20 years.

During the 1920's and 1930's, tariff protection again played a decisive role in manufacturing development of the northern suburbs, when increased Commonwealth tariffs on textiles and clothing saw significant concentrations of these industries develop in Brunswick and Coburg.

Specialisation

Manufacturing in each of Melbourne's northern suburbs had its own distinctive profile. Specialised concentrations of industry were drawn to particular areas both by inherent geographical advantages and by the complex commercial inter-relationships which developed between suppliers, markets, competitors and transport facilities.

In Collingwood, ubiquitous industries producing for urban markets dominated much of the manufacturing development. Collingwood's concentration of breweries, for example, depended initially on the large number of local hotels (which numbered over 100 in Fitzroy & Collingwood alone by 1865), to provide an outlet for their products. As breweries grew in size and output expanded, other factors, such as proximity to maltsters, became increasingly important to their location.

For the wool scourers, tanneries & fellmongers, the Yarra River bank at Abbotsford provided an ideal choice of location with the river providing a ready supply of fresh water (before the removal of the rock bar at the foot of Queen St. in the late 1860s allowed to tides to reach Abbotsford) and a convenient drain for liquid wastes. On a secondary level, the concentration of tanners provided an additional stimulus to the growing number of boot & shoe makers in Collingwood.

In Brunswick & Northcote, it was the availability of suitable clay deposits which provided the basis for the concentration of brickworks and potteries. Once the industry was established, however, it attracted new entrepreneurs who increased competition and developed new markets for related specialised products, such as fancy bricks, fire bricks, flower pots, stoneware and sanitary ware.

Table 1: Comparative Position of Manufacturing Development in Melbourne's Northern Suburbs & the North-East Transport Corridor Towns 1870-1910.
compiled from The Statistical Register of Victoria, 1870-1910.

Year	Northern Suburbs						North-East Corridor Towns			
	Number of Works	Proportion of all Melb. Manuf.g Works	Proportion of all Vic. Manuf.g Works	Total Number of Employees	Proportion of all Melb. Manuf.g Employees	Proportion of all Vic. Manuf.g Employees	Number of Works	Proportion of all Vic. Manuf.g Works	Total Number of Employees	Proportion of all Vic. Manuf.g Employees
1870	133	31.3 %	8.4 %	1,604	17.4 %	9.0 %	56	3.5 %	252	1.4 %
1880	219	25.3 %	8.9 %	3,951	18.3 %	10.4 %	36	1.5 %	236	0.6 %
1890	328	22.5 %	10.0 %	7,708	19.4 %	13.2 %	121	3.7 %	899	1.5 %
1900	293	18.9 %	9.5 %	11,010	23.0 %	17.1 %	94	3.0 %	1,144	1.8 %
1910	584	20.2 %	12.0 %	17,432	21.5 %	17.1 %	82	1.7 %	628	0.6 %

Localised concentrations of particular manufacturing industries also encouraged further specialisation within their own trade. Thus by the 1880's, specialised shoe factories in Collingwood were producing only uppers or heels, which were sold to other local bootmakers for finishing. In the clothing and shoe trades in particular, many smaller firms were able to survive producing goods under subcontract to the larger manufacturers and warehouses.

Engineering firms in the northern suburbs also developed an interdependence on other manufacturing trades by making machinery to meet their particular needs. Pullen & Co., for example, supplied tanning, wool scouring and fellmongering machinery; St. Crispin's Engineering Co. specialised in shoe-making machinery; whilst the foundries of Smith, Phillips & Dawson and Machar & Teal produced brickmaking machinery.

Transport

Transport costs are of course, an important consideration for any manufacturing enterprise. However, in Melbourne's northern suburbs they appear to have had only a minor influence on the pattern of manufacturing development. Fitzroy & Collingwood provided a good location for early manufacturing development because of their proximity to the city itself, but compared to other suburbs they were not as well endowed with transport facilities for bulky goods until the early 20th century.

Despite early hopes that dredging and de-snagging of the Yarra River might encourage a bustling paddle steamer trade as far upstream as Abbotsford, the river trade never eventuated. By the early 1860's, railways linked Melbourne's western, eastern and southern suburbs to the city centre, but the northern suburbs had to wait until the 1880's for a rail link. The Coburg line was built in 1884, and the Whittlesea line, passing through Northcote and Preston, was built in 1889. Initially, both these lines were only linked to Melbourne by the round-about Inner Circle Railway through Royal Park and it was not until 1901 that a direct line was built from Flinders Street to Collingwood.

During the early years, all raw materials and manufactured goods transported to and from factories in the northern suburb were carried by horse-dray. Larger firms established their own stables and delivered goods by horse-dray throughout the metropolitan area. The Yorkshire Brewery, for example, had stables for 26 horses by 1877. Many of the factories depended on markets in their immediate vicinity so even after the arrival of the railways many goods continued to be delivered by horse-dray until horses were finally displaced by motor lorries during the 1920's and 1930's.

Once the railways were built, it was generally the larger firms which made the greatest use of them for transporting fuel, such as coal, and bulky goods, such as bricks. Private sidings were built from the railways to serve the Hoffman Brickworks in Brunswick and the Northcote Brickworks, whilst in later years, new firms such as the Lincoln Mills in Coburg also had their own sidings.

Because both of the northern suburbs railways were initially dead-end lines, they provided no direct link with rural industries. Forward and backward linkage manufacturers who relied heavily on the rural sector, such as flour mills and agricultural implement makers, found it more convenient to locate themselves in North Melbourne, Kensington, Footscray, Braybrook or Spotswood to the west where they were at the hub of Victoria's country railway network.

Outside the metropolitan area, flour mills, woollen mills and butter factories were built in various towns along the North-east Railway. The railway provided access to raw materials outside the immediate district and access to metropolitan and export markets. On the whole, however, manufacturing in Seymour, Wangaratta and other North-East corridor towns lagged behind that of the central Victorian towns such as Ballarat, Bendigo and Castlemaine. Railway freight rates were structured more for the benefit of through traffic between Melbourne and Wodonga, rather than for intermediate centres, and this eventually led to the closure of many country factories and the concentration of rural processing industries in Melbourne.

Government Legislation & Royal Commissions

Early Victorian Governments were always ready to stimulate new manufacturing ventures, with import duties, bounties, government contracts and cheap leases of crown land, but they were reluctant to interfere with the free rein of private enterprise by introducing any form of regulations to control either the location of factories or to limit their potentially adverse effects on the environment and the health of workers and local residents.

Since 1930, the development of modern concepts embodying an unassailable public right to a clean and pleasant environment, and the introduction of appropriate legislation to protect these concepts, has had a major impact on the shape of our modern urban environment. For much of the late 19th and early 20th centuries, however, the structure and location of manufacturing in Melbourne's northern suburbs was influenced more by the lack of effective government regulations and planning controls.

Controlling the Noxious Trades

Probably the earliest attempt to directly control the location of manufacturing in Melbourne's northern suburbs was the Yarra Pollution Act of 1855. This bill was promoted by the City of Melbourne, which at the time was still drawing its fresh water supplies directly from the lower Yarra and was understandably concerned about the untreated effluent released into the Yarra by the growing concentration of soap making, wool-scouring, fellmongering and tanning works along the river bank in Richmond and Collingwood. The original intention of the bill was to ban all noxious trades from the Yarra banks, but during its passage through Parliament, it was amended to allow existing establishments to remain in operation, prohibiting only further expansion of the industry. The Act however was never properly enforced, and the noxious trades grew completely unchecked. By 1870 there were several tanneries, fellmongers and wool scouring works in Richmond and Collingwood, and the largest of the Collingwood works was clearing 3,000 sheep skins a week, discharging thousands of gallons of untreated washing water directly into the river.

The next attempt to control noxious manufacturing trades was made with the Public Health Act, introduced in 1867, but once again, lobbying from pro-industrial members in the parliament saw the clauses relating to pollution of the Yarra removed. According to Lack, the 1867 Act was so weak, that it 'virtually invited noxious trades to proliferate'.[1] It was not until an Amending Act was passed in 1883, that municipal councils, through their Local Board of Health, had the power to withhold approval to build new manufacturing works of an offensive nature. At the same time it became mandatory for the Local Board of Health to follow up any complaints from ten or more residents, regarding nuisances to public health or offensive 'effluvia'.

The influence which this legislation had on manufacturing activities in each municipality depended to a large degree on the prevailing attitude of the local council. Barrett has also shown that in Collingwood at least, the majority of councillors elected after 1867 were pro-noxious trades. Proprietors of soap works and tanneries simply gained immunity from prosecution by obtaining a seat on the local council and ensuring that their own views prevailed. Members of Parliament from the Collingwood and Richmond electorates vigorously opposed any Bills aimed at controlling manufacturing activities or the noxious trades, and even judges were not immune to influence, with cases of complaint against manufacturers under the Noxious Trades Act being thrown out of the local courts.[2]

In 1869, the Melbourne City Council again sought to gain control over the whole of the lower Yarra, from Dights Falls to the city, so that anti-pollution measures could be effectively enforced, but it was criticised in parliament as being anti-protectionist. The following year, a Royal Commission was appointed to examine some of the ongoing problems associated with Melbourne's noxious trades and propose possible solutions.[3] The Royal Commission visited 121

[1] John Lack 'Worst Smellbourne" in Davison et.al. *The Outcasts of Melbourne,* 1985, p.180

[2] B. Barrett, *The Inner Suburbs: The evolution of an industrial area*, Melbourne University Press 1979.

[3] Royal Commission on Noxious Trades, *VPP.*, 1870.

noxious works including a number in Collingwood, Preston, Brunswick, and Phillipstown (Coburg). One of the Royal Commission's main recommendations was for the establishment of a noxious trades estate at Fisherman's Bend, two miles from the city, where the most offensive industries such as boiling-down works, bone mills and manure factories could be concentrated. In regard to the breweries, tanneries fellmongers and wool-washing works, which proliferated in Collingwood, the commission did not consider that relocation was warranted, because of the capital investment and large number of local residents employed in the works.

Fellmongering activities declined after the closure of the Collingwood abattoir in 1870, but tanning and wool scouring works continued to grow, so that by 1930 there were eleven such works in Collingwood, Abbotsford and Clifton Hill, compared to only eight in 1890.

Other northern suburban councils took a more aggressive stance on noxious trades than Collingwood, but action depended largely on the views of individual councillors and the perceived importance of noxious industries to the local economy through employment and trade. Hutton moved his bacon curing works from Coburg to Preston in the early 1880's after complaints from the local council,[1] and in Northcote, a local Health League was formed in 1880 by residents concerned about the effect of fumes from noxious industries on property values and public health. The local council successfully prosecuted the owners of several slaughter houses and noxious factories. The Preston council, however, like Collingwood, tolerated noxious trades and Preston soon became a centre for bacon-curing and tanning works. Wastes from these works were allowed to flow into Merri Creek unchecked through Bullen's drain, causing a source of ongoing complaint to the Northcote council to the south.

The Factory Acts

Aside from these attempts to control the noxious trades indirectly, through pollution and public health acts, the other early attempts to provide legislative control over manufacturing activities were made by the Factories and Shops Acts.

The first Factory Act, passed in 1873, was concerned primarily with eliminating exploitation of women and children in factories and work-rooms. It also included some clauses relating to health and sanitary provisions in factories, but it is doubtful whether these were very effective. Enforcement was left up to local authorities, creating obvious conflicts of interest, and the act only applied to factories with ten or more employees.[2]

After numerous public complaints, a Royal Commission was appointed, in 1883, to examine the shortcomings of the 1873 Act. One of the main recommendations of the Royal Commission, was that independent factory inspectors should be appointed who were responsible directly to Parliament through a Chief Inspector of Factories.

A new Factories and Shops Act was introduced in 1885 to implement some of the recommendations of the Royal Commissions and further Amending Acts were passed in 1893 and 1896, which saw the regulations extended to cover all factories employing four or more people, and the establishment of Wages Boards, to set minimum wage rates in certain manufacturing trades.[3]

Possibly the most direct impact that these Acts had on the structure of manufacturing in the northern suburbs, was in the provisions of factory building codes. Under the 1885 Act, the Central Board of Health was given the power to set minimum requirements for heating, lighting, ventilation and sanitary facilities, which had to be met in the design of any new factory buildings or extensions. One of the most significant Central Board of Health regulations required a minimum space of 640 cu. ft. to be provided for each employee inside a factory with an unlined iron roof, or

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1 C. Johnston, *Keeping Brunswick's Heritage*

2 Royal Commission on Employees in Shops, 1874, *VPP*, 1884.2. (18)

3 *VPP* 1886-96, 1890, 31-38

a minimum space of 500 cu. ft. per employee if the factory had a slate roof and proper ceiling. The effect was to encourage a better standard of factory construction.

It is difficult to determine the extent to which factory design was directly effected by Central Board of Health regulations, rather than the prevailing opulence and prosperity of the period, but surviving factories of the 1880-1915 period, reflect the gradual evolution of improved design principals. Factory buildings constructed in this period are generally of substantial brick design with generous window area to make the best use of natural light. By the mid 1890's, the Factory Inspector for the Fitzroy and Collingwood district was commenting favourably in his report on the extent to which newer, more substantially built, factories had replaced earlier premises since the Factory Act was passed. He also noted an increasing trend for proprietors to own their own factory rather than using rented premises, as had formerly been the general practice.

One of the major short-comings of all the 19th century Factory Acts, was that they applied only to factories in municipalities which were towns, boroughs or cities. Outside these areas, shire councils could apply to have the Acts extended to cover their district, but in fact none did so. The Chief Inspector of Factories complained regularly in his report, that unscrupulous manufacturers could evade the provisions of the acts by simply moving their operations to a shire outside the main metropolitan area. This is one factor which helps explain why manufacturing in Preston increased so rapidly during the 1880's and 1890's. By 1900, the number of factories in the Shire of Preston, was almost twice that of the Borough of Northcote, despite the fact that Northcote was closer to the city. (Northcote was proclaimed a Borough in 1883.)

Town Planning Controls

Town-planning powers, offering the potential for direct control of manufacturing development, were not introduced in Victoria until 1921, when the Municipal Government Act provided local councils with the power to make residential by-laws controlling land use within their own municipality. In Brunswick the introduction of municipal by-laws controlling extractive industries saw the closure, from the 1920's onwards, of many quarries and clay pits, which were filled to provide new public parks. Land which had previously been reserved for future clay pits was sold off for residential development and as existing clay pits were exhausted most of the brickworks closed down. By the 1950s the Hoffman Brick works were forced to bring in clay from outside the district in order to keep their kilns operating.

The first attempt to provide overall planning control for land use in the whole of the Melbourne Metropolitan area was made by the Town Planning Commission, which presented a major report on future directions for Melbourne's development in 1929, but due to the onset of the economic depression no legislation was ever introduced to implement its recommendations.[1] It was not until 1954 that the Melbourne and Metropolitan Planning Scheme introduced the modern system of zoning which now dictates all land use in the metropolitan area. By this time manufacturing patterns in most of the northern suburbs were already well defined. The existing unplanned mixture of residential and manufacturing development has meant that the northern suburbs still have a high proportion of non-conforming industries zoning.

The modern pattern of manufacturing activities in the northern suburbs has also been influenced by the formation on the Environment Protection Authority in 1971. Stricter EPA controls on atmospheric pollution contributed in part to the closure of steel and iron foundries in Brunswick and Coburg.

[1] *Plan of General Development Melbourne.* Report of the Metropolitan Town Planning Commission, 1929.

Manufacturing Statistics

In order to properly examine the relative growth of manufacturing in each of the Northern Suburbs and North-East transport corridor towns, and the development of various manufacturing sectors within each municipality, it is necessary to have some form of statistical series that provides comparable manufacturing data for each municipality. Unfortunately there are no published sources that provide such information on a consistent basis throughout the whole period under examination in this study, so it is necessary to rely on information drawn from a variety of sources.

The most useful statistics for a suburb by suburb comparison can be found in the *Statistical Register of Victoria*, which was published annually by the Victorian Government, appearing in the *Victorian Parliamentary Papers*. For the purposes of this study, the main limitations of the *Statistical Registers* are that they do not cover the whole of the period under examination and do not always provide sufficient detail on the relative importance of various manufacturing sectors within each municipality. In order to overcome these deficiencies two other statistical sources have also be utilised.

The *Victorian Yearbooks*, which began in 1875, continued after the *Statistical Registers* ceased in 1914 and were also compiled and published by the Government Statistician's Office using the same data, though it is generally presented in less detail. In this report the *Yearbooks* have been used primarily to extend the series derived from the *Statistical Registers*, providing limited information on manufacturing in each suburb for the years 1935-1950. Unfortunately, there are no government statistics for manufacturing on an individual municipality level available between 1910 and 1935, which was one of the greatest period of manufacturing expansion in Melbourne's Northern Suburbs.

The third statistical source that has been used extensively in this study is the *Sands & McDougall's Melbourne & Suburban Directories* (also published in later years as the *Sands & McDougall's Melbourne, Suburban & Country Directories* and the *Sands & McDougall's Directory of Victoria).* Although the information contained in these directories is not directly compatible with either the *Statistical Registers* or the *Victorian Yearbooks*, it provides a useful comparison that helps to bridge the time gap between the two former official sources, and to identify some of the weakness and shortcomings in the information they contain.

Each of these statistical sources has its own limitations and inaccuracies. Whilst is not the intention of the authors to pretend that such shortcomings do not exist, in the absence of any more reliable statistics, these sources can be used to demonstrate many of the more significant features of manufacturing development in Melbourne's Northern Suburbs and the North-East transport corridor towns. The general approach taken has been to present the data as closely as possible to its original form without modification or manipulation, so as to avoid the possibility of 'colouring' the data with false interpretations. It was felt that any attempt to adjust the series to overcome known limitations in the methods of collection or compilation would only add further potential errors and uncertainty without necessarily producing a more accurate result. Thus with the data from the *Sands & McDougall Directories*, for example, a full listing of factory and trade titles is provided in each manufacturing sector, so as to show how the overall totals were derived and provide an indication of how descriptions used by the directory compliers evolved over the period under study. The following brief discussion identifies some of the main deficiencies in the two major statistical sources, and it is intended that these comments should be kept in mind when reading the remaining sections of the introduction.

Whilst various economic historians, such as Butlin, Linge, and Thompson[1], have examined the shortcomings of *Statistical Registers* in detail and attempted to adjust the aggregate series in order to overcome them, they have dealt primarily with employment figures and have only considered Victoria as a whole. Whilst employment provides a convenient overall indication of manufacturing

[1] N.G. Butlin, *Investment in Australian Ecconomic Development*, 1964, pp.203; G.J.R. Linge, *Industrial Awakening - A Geography of Australian Manufacturing 1788 to 1890*, 1979, particularly Appendix I, pp.728-734; A.G. Thompson, *Statistical Measurement of Manufacturing Activity in Victoria 1861-1901*, M.Com thesis, University of Melbourne, 1964.

or economic growth, it is not as directly relevant to a study such as this, which deals primarily with built structures from the manufacturing industry. For the purposes of this study, a series indicating growth in the total number of factories in each suburb is of most use. Employment series and other series for indices such as motive horsepower, output and the total value of plant or buildings embellishes the original series by giving an indication of how the average size of factories changed over time.

Compiling a series based on the number of factories in each municipality presents different limitations in the original sources to a series based on employment thus the need of this discussion.

In 1869 Georgiou made a detailed study of the boot & shoe trades in Collingwood, using the municipal rate books to identify shortcomings in the *Sands and McDougall* directories coverage of this trade. Rimmer has also undertaken some similar analysis.

The Statistical Registers of Victoria

Unfortunately the *Statistical Registers* are not particularly helpful in providing an accurate record of factory growth during the formative years of manufacturing in the Northern Suburbs, however, they can be used to provide a good indication of developments occurring from 1870 onwards.

Up until 1868, the *Statistical Register* provided two tables headed 'Manufactories, Works, Etc.' which list information on the number and type of factories throughout the colony on a county by county basis. Obviously this is of little use for a detailed study of manufacturing in the northern suburbs, because the whole of Melbourne and its suburbs, together with a good deal of surrounding rural land, lies within the Bourke County. From 1870, the format of these tables changed slightly with the information being grouped according to municipality or local government area. This allows separate statistical series to be compiled from 1870 for each suburb, except of course in those areas where a municipality incorporated more than one suburb.

In addition to the main tables headed 'Manufactories, Works, Etc.', the *Statistical Registers* from 1870 onwards also include tables providing separate figures on a municipality by municipality basis for several key manufacturing industries. The industries separately enumerated in this way include 'Breweries', 'Brickyards and Potteries', and 'Mills for Grinding and Dressing Grain' (ie. flour mills) from 1870, 'Tanneries', 'Woollen Mills', 'Fellmongers and Wool washing Establishments' from 1876, 'Soap and Candle Works', 'Tobacco, Cigar and Snuff Manufactories' and 'Distilleries' from 1881. During the 1890s, further key industry tables were introduced to cover groups such as 'Forest Sawmills', Ham and Bacon Curing Works', 'Butter and Cheese Factories' and 'Boot Factories'.

While these separate industry tables provide an good opportunity to closely examine some key industries on a suburb by suburb basis, a careful examination reveals that prior to 1888, the figures in the key industry tables are not included in the main 'Manufactories, Works, Etc.' tables. Thus to produce a statistical series covering all factory types in each suburb it was necessary to add figures from the key industry tables to those from the 'Manufactories, Works, Etc.' table between 1870 and 1887. Unfortunately this creates some difficulties because wherever only one establishment of a particular type was recorded in a given municipality, the details relating to number of employees, motive horsepower and value of plant & machinery, etc. were combined with details from other municipalities with only one entry in order to avoid disclosing confidential information on any one firm. Because there is no way of accurately estimating these details, the approach taken has been to simply combine all figures that are available separately for each municipality and indicate by footnote the number and type of factories that have had to be excluded from the totals. (For example, the footnotes beneath *Table 11*, providing combined information on all types of manufacturing in Brunswick, indicate that one brewery has been left out of the 1875-6 figures and one tannery left out of the 1885-6 figures.)

In the following sections the analysis of manufacturing development in each suburb begins with a table drawn from the *Statistical Registers* and *Victorian Yearbooks* that presents a series of combined statistics for all manufacturing industries in the suburb listing the overall number of factories in operation, the proportion using various types of mechanical power to drive machinery,

the combined horsepower of mechanical power sources, total number of employees, combined value of machinery & plant and combined value of buildings. In most cases the statistics for each suburb have been compiled on a five-yearly basis, however, in some instances shorter intervals are used where changes to the municipal boundaries or major economic events caused significant discontinuities in the series within the five-year period.

In addition some individual industry tables have also been drawn from the *Statistical Registers* to provide a more detailed picture of development in key manufacturing sectors in some suburbs, such as the breweries in Collingwood and the brickworks and potteries in Brunswick, Northcote and Preston.

Whilst these tables on first impression appear to present a consistent long-term statistical series, it is important to recognise that there were a number of changes made in the way the data was collected and compiled that had a significant effect on the long-term continuity of the figures.

Whilst it appears to have always been the intention to distinguish between factory and non-factory based manufacturing in the *Statistical Registers*, some doubt remains over the consistency of the data published in the earlier years because it seems that no strict definition was used of what constituted a factory. In the 1860 *Statistical Register* a footnote indicates that 'only Manufactories where more than one person is employed' were included in the published returns, however this note does not appear in subsequent returns and a comparison of the figures with other contemporary sources suggests that no definition based strictly on the minimum size of a factory was being systematically applied.

The next indication of any formal definition being used does not appear until 1875, when the following head note appeared in the *Statistical Register* above the table for 'Manufactiories, Works, Etc.':

The works, manufactories, &c., respecting which information is given are all of an extensive character, except in cases where the existence of industries of an uncommon or interesting nature might call for notice. Any establishment returned by the collectors which appears to be merely a shop, or at which manufacturing operations are carried on upon a limited scale are not included...[1]

When the 1875 manufacturing statistics were republished in the *Victorian Year Book*, a footnote also appeared which suggested that

the principle ... has always been followed in this colony, of publishing statements respecting the extensive establishments only, except in cases where the existence of industries of an uncommon or interesting character might call for notice... These establishments had no machine power, and rarely employed more than one or two hands.[2]

Despite these comments, a careful examination of the published returns reveals that significant changes in type of industries recorded were occurring throughout the early 1870s. It seems that the Government Statist was still developing a formal definition of what constituted a 'factory', with attempts being made not only to exclude those businesses that were primarily retail in nature, but also to distinguish between factories and traditional trade workshops that dealt with repairs and well as manufacturing.

Blacksmiths' and wheelwrights' workshops obviously fell into the later group and were always intended to be excluded from the factory returns in the *Statistical Registers* but with businesses such as joineries, agricultural implement works and coach works the distinction was less clear. In some cases sharp discontinuities are apparent where sudden changes in definition were adopted. The most important groups affected in this way were the coach-building and printing works for which only steam-powered premises were included prior to 1875, whilst after this date all 'extensive' works in these industries were included. Likewise only steam-powered cabinet works

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[1] *Statistical Register of Victoria*, 1875, Part V - Production, p.56.
[2] *Victorian Year-Book*, 1875, p.86

were included up until 1876.[1] Changes in the coverage of these three industries have a significant impact on the overall manufacturing statistics for Fitzroy and Collingwood, where they formed a particularly prominent sector of local manufacturing.

In other sectors the changes in coverage appear to have been more gradual. Between 1875 and 1881, footnotes were published in the *Statistical Registers* indicating the number and type of works that were recorded by collectors but excluded during compilation of the returns for publication. Thus in 1876, for example, 144 works were excluded in this way, representing about 8% of all returns. Some idea of how the criteria were applied can be gained by examining the type of works excluded. Clearly some, such as the goldsmith & jewellers' establishments, the saddle & harness manufactories, and several boot and clothing factories were excluded because their business was partially retail or repair orientated in nature, however, other works such as a glue manufactory, a tallow-melting works, four iron and tin works and a venetian blind manufactory can only have been excluded on the basis of size. The distinct impression gained is that whilst the Government Statist may have had a clear idea of what should or shouldn't be included by this time, his collectors were not so certain.

Between 1885 and 1900, the main changes in the scope of manufacturing statistics published in the *Statistical Registers*' result from a gradual formalisation of the definition of minimum factory size. According to the *Victorian Year-Book for 1895-8*, for the first time in the 1894-5 statistics, 'a general rule was made excluding factories employing less than four hands, unless machinery worked by steam, gas, electric, water, wind or horse power was used, or the industry was of an unusual character'.[2] This appears to be the first instance in which a formal definition based on number of employees was adopted, but exceptions were still being made. A note in the 1894, *Statistical Register* indicates that exceptions to the lower employment limit were made for factories whose employment had temporarily fallen below four due to the recession and since 1891, collectors had been instructed not to include retail clothing manufactories employing less than ten hands or retail boot factories employing less than five hands.[3]

In 1896, after an agreement aimed at adopting a more standard approach was reached with the New South Wales, all footwear, dressmaking, millinery, tailoring and underclothing factories employing four or more people were included in the *Statistical Register* and any factories that still remained below the minimum size requirements due to the depression were excluded.[4]

It is important to note that these changes in definition coincided with a period when dramatic structural changes were occurring in the organisation of manufacturing in the clothing and footwear trades. In the retail sector the first moves away from tradesman operated shops to larger department stores and linked retail chains were occurring whilst at the same time larger mechanised factories were becoming more commonplace. The changes in definition adopted by the Government Statist's office can be seen as both a recognition and a reflection of these structural changes.

Following this, a final change to the definition of a factory, used in the compilation of the *Statistical Registers*, was made in 1902 after a conference of Government Statisticians from all Australian States agreed to uniformly adopt the definition of a factory as being:

All establishments employing, on the average, four hands or upwards, also those with less than four hands, where machinery is worked by power other than manual, making or repairing for the trade (wholesale or retail), or for export.[5]

The major effect of these change appears to have been to include a number of repair-orientated workshops in the engineering, metals and wood working sectors that had previously been excluded. It is believed that this had a significant affect on the high manufacturing growth rates

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[1] Linge, *Industrial Awakening - A History of Australian Manufacturing*, 1979, pp.732-3.
[2] *Victorian Year Book for 1895-8*, p.930.
[3] *Statistical Register of Victoria*, 1894, Production, p.48; Linge, *Industrial Awakening*, 1979, pp.729-30.
[4] *Statistical Register of Victoria*, 1896, Production, p.54; Linge, *Industrial Awakening*, 1979, p.732.
[5] *Statistical Register of Victoria*, 1902, Production, p.33.

recorded in the *Statistical Registers* between 1900 and 1910, particularly in the suburbs of Fitzroy and Collingwood.[1]

Similarly, a comparison of the number of 'factories' recorded by the *Victorian Year Book* in 1935 with those recorded by the 1930 *Sands & McDougall Directory* suggest that coverage of the official statistics had been further extended, possibly including businesses such as motor garages and bakeries. Because of this, some degree of caution should be adopted in comparing the official government manufacturing statistics for 1910 and 1935-50, with those from pre-1901.[2]

In most cases changes in the coverage of the *Statistical Registers* and the *Victorian Year Books* between 1870 and 1930, had the effect of exaggerating true manufacturing growth rates, but a few of the changes also had a negative impact. For example from 1896, employees and plant involved in the distribution of gas were excluded from the returns for gasworks for the first time, which had a significant negative impact on these two indices in Fitzroy where a major gasworks was situated, exaggerating the effect of the recession on the manufacturing statistics for this municipality.

Apart from changes in definition and scope, the long-term consistency of manufacturing data in the *Statistical Registers* was also affected by changes to the way in which the statistics were collected. Up until 1874, all statistics were collected by government employed collectors (in a similar ways to censuses), whilst after this the collection of manufacturing and other statistics became a municipal responsibility under the *Local Government Act*. With the exception of 1880-1, when an only partially successful attempt was made to use general census sub-enumerators, collection of manufacturing statistics continued to be done by municipal council appointed agents until 1902, when the task became the responsibility of local police authorities.[3] Thompson claims this contributed to poorer coverage, but this was certainly not the case in Fitzroy or Collingwood, though it might have affected outer suburbs.

A close examination of individual industries on a year by year basis, and comparison with the figures collected by census sub-enumerators for the 1881 *Statistical Register* indicate that considerable improvements in coverage did occur throughout the 1870s. One result of this would have been that as collection processes were improved, there was a greater tendency for collectors to err on the conscientious side and include non-manufacturing businesses which in turn appears to have prompted the Government Statist to filter returns more carefully and formalise the definition of a factory.

The major problems with Thompson's approach result from the occupational rather than industry based method of identifying classes of labourers. For example the categories of blacksmith and wheelwright obviously include a large number of tradesmen operating repair-type workshops or employed in industries such as farming and mining as well as manufacturing, and there is no easy way to determine how this group can be accurately split up.

The Sands & McDougall Directories

Whilst, the *Sands & McDougall Directories* provide the convenient alternative source from which to study certain features of manufacturing development not covered in the *Statistical Registers* it is important to realise that the two sources are not directly comparable. In this study data has been

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[1] Analysis in M.S. Churhcward, *The Influence of Gold-Mining on the Development of Engineering Manufacturing in Victoria During the 19th Century*, M.Eng.Sci. Thesis, University of Melbourne, 1988, shows that the number of works recorded in the various engineeering & metal trade sectors by the *Statisitcal Registers* jumped by 20 to 150% between 1901 and 1902 alone.

[2] For all suburbs examined the offical manufacturing statistics from the 1935 *Year Book* are much closer to those drawn from the 1930 *Sands & McDougall Directory* than the figures from the *Statistical Register* and the *Sands & McDougall Directory* are in 1900.

[3] Significant discontinuities can be observed between the 1879, 1880 and 1881 manufacturing statistics in the *Statistical Registers*, much of which was probably due to this attempt to use alternative collection methods. In the *Victorian Year Book for 1880-1*, the Register General, in referring to this experiment, commented that "*...it was not entirely successful, as, although many establishments were doubtless returned which in former years had escaped the notice of the collectors employed by municipal authorites, a number of establishments were also omitted, probably owing to ... the short space of time necessarily allowed for census collection*"

drawn from three issues of the directory at 30 years intervals (1870, 1900 and 1930) and complied into tabular form. The choice of these years provides both a broad picture of manufacturing development over the main period under study and two sets of figures (1870 and 1900) that can be compared with the official manufacturing statistics.

Georgiou made detailed investigation of the boot & shoe trades of Collingwood and came to the conclusion that the directories were not complete.[1] However this is based on the false assumption that 'bootmakers' recorded in both the directories & rate books were self-employee, 'backyard' operators. If we examine the street by street section of the directories and not the trade section we find a larger number of 'bootmakers' are included. Therefore, these people must either be company-employed or they are operators that could not afford the five shilling fee to take out a directory listing in the trades section.

The main limitation of the Directories is that they do not use any definition of a factory. However this can be regarded as an advantage because its all inclusive figures can be compiled the way we desire and we can keep a check on development of non-factory manufacturing. In the analysis we have tried to separate 'factory' manufacturing from non-factory manufacturing because this study deals primarily with factory development and because of the need to compare with data from the statistical registers.

156 | *Fitzroy, Melbourne's First Suburb*

[1] N. Georgiou, *Some Features of the Collingwood Boot & Shoe Industry ...*, B.A.Hons thesis, University of Melbourne, 1969

FITZROY

Fitzroy is not only Melbourne's oldest official suburb, but can also lay claim to being one of the city's first manufacturing suburbs.[1] Originally, Fitzroy was considered to be a part of Collingwood, and when the first residential subdivisions were made, it became known as Newtown. This was changed to Fitzroy when it was first declared as a municipality in its own right in September 1858. Five years later its status was extended to that of a Borough, followed by a Town in 1870, and finally a City in 1878. Initially the municipality only covered the area bounded by Victoria Parade, Nicholson, Smith and Princes Streets, which is now known as South Fitzroy, but in 1860, an additional 480 acres was added covering most of what is now North Fitzroy.[2]

Fitzroy and Collingwood were the two leading manufacturing muncipalities in the northern suburbs throughout the later part of the 19th century, Fitzroy was also one of most important manufacturing centres in the whole of Victoria. Despite having a slightly later start than Collingwood, Fitzroy had only 8% fewer factories than its eastern neighbour by 1900, and perhaps more significant still, it had a greater density of factory development, with 70.7 factories per square mile, compared to 62.4 per square mile in Collingwood. Even in 1930, Fitzroy had more factories per square mile than any other municipality in Victoria, except for the City of Melbourne. By Australian terms at least, Fitzroy was a highly industrialised municipality and much of the evidence of this industrial history remains in its surviving buildings.

Although residential setlement had commenced by 1839, industrial development did not begin until after the first wave of gold rush immigration in 1852-3. Over the next two and a half decades, manufacturing development in Fitzroy was primarily geared towards the production of food and drink products, household goods and building materials for the rapidly growing post-gold rush population. One of the first manufacturers in Fitzroy was the firm George Wilson & Co., who established themselves as wholesale wine & spirit merchants in 1853. By 1860, they had built an impressive two-storey brick factory at 97 Webb Street where they made British-style wines, liquers, cordials, bitters, vinegar and boot blacking, all products that would have suffered considerable deterioration on the long voyage out from England if they were imported. By 1867, G. Wilson & Co. had sold their business to Messrs T. Flintoff & Co. who continued it for a number of years. The building was subsequently occupied by a boot factory, but has since been demolished.[3] Other food manufacturers were also amongst the first factories in Fitzroy, producing commodities such as beer, aerated water and biscuits.[4]

Other early manufactureres included timber mills and joinery works which produced doors, window sashes, floor boards and mouldings for the many new houses, whilst Archibald Allan opened a small workshop in Brunswick Street to make galvanised-iron spouting and various hardware products.[5]

The only manufacturing building which appears to have survived in Fitzroy from this early period is James Reilly's flour mill on the corner of Brunswick and Cecil Streets. Although this mill was possibly not built by James Reilly, he is the first recorded occupier having leased the mill for about 3 years from 1869 or 1870, after which he moved to Benalla to build his own mill. The substantial two-storey brick structure is not only typical of other Victorian flour mills of this period, but also reflects the high standard of construction used for other early Fitzroy factories that no longer survive. The Fitzroy Sash Factory, for example, began as a small carpenter's shop at the corner of Napier and Charles Streets in 1859, but within ten years had grown to occupy a two-storey brick building, measuring 70 feet by 80 feet, where 30 men and a large collection of steam-powered wood-working machinery were busily employed.[6]

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1 *Fitzroy: Melbourne's First Suburb, p.6.*

2 *Municipal Directory of Victoria,* 1930, p.i; *Fitzroy: Melbourne's First Suburb.*

3 *Fitzroy: Melbourne's First Suburb,* p.156 (illustration); D. McLeod, *Melbourne Factories,* 1868, pp.57-8.

4 *Sands & McDougall Directories*; McLeod, *Melbourne Factories,* 1868.

5 J. Smith *Cyclopedia of Victoria,* 1903, wol.1. pp.578-9; McLeod, *Melbourne Factories,* 1868

6 McLeod, 1868, p.5

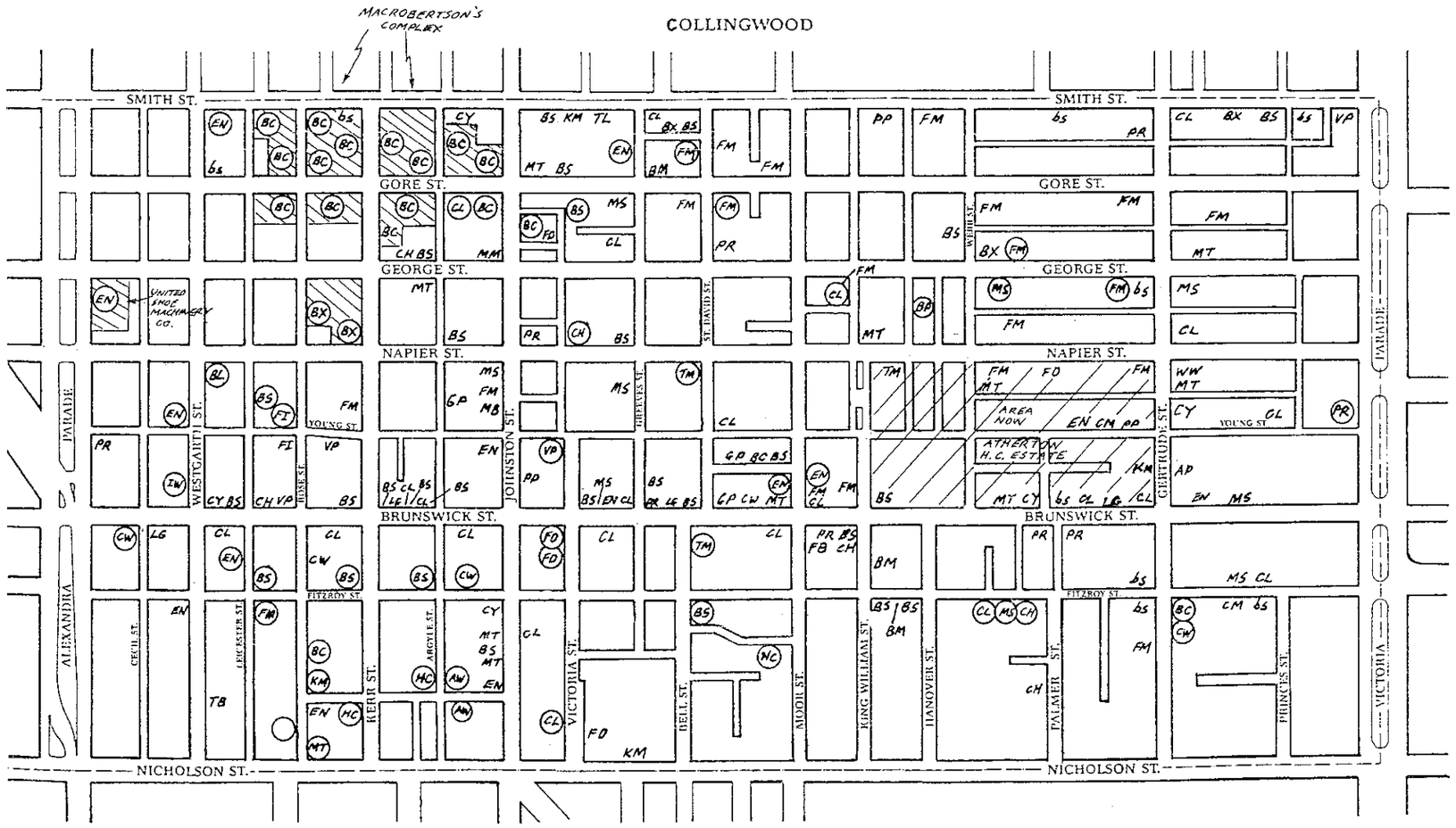
MAP 4.

SOUTH FITZROY - CITY OF FITZROY
DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study
Base map adapted from "Fitzroy - Melbourne's First Suburb".

N

SCALE (APPROX.): 0 — 500 m



Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

KEY TO FACTORY TYPES

AP	miscellaneous animal products
AW	aerated water & cordial manufrs.
BB	brush & broom manufacturers
BC	bread & confectionery manufrs.
BM	misc. building materials
BP	boot polish manufrs.
BS	boot & shoe manufrs. & factories
bs	boot & shoes makers
BW	bellows manufacturers
BX	box & case manufrs.
CH	chemicals, ink & dye manufrs.
CL	clothing manufrs. & factories
CM	cabinet makers
CW	coachbuilders & wheelwrights
CY	cycle builders & cycle works
EN	engineers & machinists
FB	brass foundries & founders
FD	food product manufrs.
FI	iron foundries & founders
FM	furniture manufacturers
GP	glass product manufrs.
HC	hat & cap manufrs, factories
KM	knitting mills
LG	leather goods manufrs. (excl. boot & shoe makers)
MB	motor body builders
MM	monumental masons' works
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PP	paper products manufrs.
PR	printers
RP	rope & cordage works manufrs.
TL	tanneries, curriers & leather dressers
TM	timber mills & joinery works
WW	wood workers & turners, wicker workers

MAP 5.

NORTH FITZROY - CITY OF FITZROY
DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study
Base map adapted from "Fitzroy - Melbourne's First Suburb".

SCALE (APPROX.): 0 — 500 m

Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

KEY TO FACTORY TYPES

AW	aerated water & cordial manufrs.
BB	brush & broom manufacturers
BC	bread & confectionery manufrs.
BL	blacksmiths
BM	misc. building materials
BR	breweries
BS	boot & shoe manufrs. & factories
bs	boot & shoes makers
BX	box & case manufrs.
CH	chemicals, ink & dye manufrs.
CL	clothing manufrs. & factories
CM	cabinet makers
CW	coachbuilders & wheelwrights
CY	cycle builders & cycle works
EL	electric lighting works
EN	engineers & machinists
FB	brass foundries & founders
FD	food product manufrs.
FI	iron foundries & founders
FM	furniture manufacturers
FS	steel foundries & founders
GW	gas works
HC	hat & cap manufrs, factories
HM	hosiery mills
KM	knitting mills
LG	leather goods manufrs. (excl. boot & shoe makers)
MM	monumental masons' works
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PL	fibrous plaster manufrs.
PR	printers
TM	timber mills & joinery works
VP	misc. vegetable product manufrs.
WW	wood workers & turners, wicker workers

Table 2: Manufacturing in Fitzroy 1870-1976.
compiled from The Statistical Register of Victoria, 1870-1910; Victorian Year Book, 1935-1950 & Manufacturing in Melbourne, Report of the Technical Advisory Committee, M.M.B.W., 1979, p.42.

Municipality	Year	Number of Manuf.ing Works Recorded	Number of Steam Powered Works	Number of Gas Engine Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees[δ]	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £
Fitzroy Town	1870-71	28	13	-	114	576	129,990	20,770
Fitzroy Town	1875-76	34[°]	19	-	151	963	104,099	90,301
Fitzroy City	1880-81	82[φ]	33	2	237	2,061	44,198	57,385
Fitzroy City	1885-86	78*	26	11	349	2,287	62,598	75,665
Fitzroy City	1890-91	77	26	17	393	2,010	79,417	97,583
Fitzroy City	1896	60	17	23	426	1,978	79,070	77,740
Fitzroy City	1900	102	20	41	646	3,435	91,520	95,650
Fitzroy City	1910	220				5,740		
Fitzroy City	1935-36	344				8,487	749,706	1,214,095[#]
Fitzroy City	1940-41	327				9,789	966,048	1,534,552[#]
Fitzroy City	1945-46	343				9,618	1,062,730	1,751,484[#]
Fitzroy City	1950-51	444				11,558	2,615,280	2,702,098[#]
Fitzroy City	1961					11,510		
Fitzroy City	1971					9,305		
Fitzroy City	1976					6,716		

NOTES: [°] All figures for this year exclude one brewery and one brickyard in Fitzroy for which separate returns were not published.
[φ] All figures for this year exclude details relating to one flourmill in Fitzroy for which separate returns were not published.
* All figures for this year exclude details relating to one tannery in Fitzroy for which separate returns were not published.
[#] Includes value of both land & buildings.
[δ] All employment figures exclude outworkers.

Likewise, T.H. Meirs had built a substantial brick factory at the corner of Victoria Parade and Brunswick Street, where he installed steam-powered biscuit-making and aerated bread-making machinery. Meirs attributed much of his early success to the fact that his products were fresher than imported biscuits from either America or Britain.[1]

Another important manufacturing development in Fitzroy during the immediate post-gold rush decades was the founding of the Collingwood, Fitzroy and District Gas Company in January 1859. By April 1861, the company had completed its works on the north-east corner of Smith Street and Reilly Street (now Alexandra Parade), with 60 fireclay retorts and a capacity to produce 60,000 cubic feet of gas a day. This was the first factory to be built in North Fitzroy and for many years it remained the only significant industrial development north of Alexandra Parade. Throughout the 1860s and 1870s, the gasworks was extended to cover most of the block bounded by Smith and George Streets and Queen's and Alexandra Parades, and a network of underground pipes were installed to supply gas to customers throughout Fitzroy and Collingwood.[2]

The introduction of the first Victorian import duties on *apparel & slops, hosiery, gloves, hats, caps, boots & shoes* in April 1866 appears to have had a major stimulus on manufacturing in Fitzroy, encouraging the establishment of the first clothing and footwear factories in the suburb.[3] Richard White, who in 1866 established what was probably Fitzroy's first boot factory, in later years was to claim that he had first been attracted to Victoria, by the McCulloch Government's protective tariff. By 1870, he had been joined by Yager & Hurst, Roelens & Burdett and E. Faulkner, who were all based in George Street (the later two firms were described as boot-upper manufacturers). In 1871, Christian Schieferdecker arrived from Germany and established the Frankfort (sic) Boot Factory in Fitzroy also, employing 10 hands.[4]

Johann G. Yager & Robert Hurst had both previously worked as journeymen at Hugh Thompson's boot factory in Collingwood before forming a partnership and opening their own small boot shop in Brunswick Street, Fitzroy. They began with only one boy as an assistant, but within three months had moved to larger premises in George Street and were employing 12 people. In 1872, they built their first factory in Kerr Street.[5]

Whilst factory-based manufacture of footwear had clearly begun in Fitzroy, these first establishments were not large mechanised operations, but rather a collection of tradition tradesmen and assistants working under the one roof. Thus, even when Roelens & Burdett erected a larger three-storey factory in 1873, all making and finishing in their works was still done by hand.[6] As was the case in all Australian colonies at this time, most of the better quality shoes made from fine leathers or calf skins were still imported, whilst locally produced footwear tended to be of the heavier coursely-stitched type, such as workmen's boots or so-called 'strong work'. It is interesting, however, that two of the earliest manufacturers in Fitzroy were described in the directory as 'boot-upper manufacturers', suggesting that they had already adopted a degree of specialisation by concentrating on producing only uppers for sale to smaller retail bootmakers' shops who would then finish the boots off to fit specific customers.

By 1870, the Statistical Register recorded 28 factories in Fitzroy, including 14 with steam powered machinery *(table 2)*. By comparison, the *Sands & McDougall Directory* suggests that there were possibly as many as 56 factories operating in Fitzroy by this time, including two flour mills, two cordial factories, a brewery, four hat and cap works, five clothing factories, two boot and shoe factories, and four timber mills & joinery works *(table 4)*.

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1 McLeod, 1868, pp.22-23.

2 Proudley, *circle of influence*, 1987, pp.304-5.

3 The original tariff introduced under *An Act for granting ... certain Duties of Customs*, 29 Vic. 393, 18th April, 1866, speciporvided specific duties of 5/- per cubic foot on all apparel & footwear, but this was changed to a 10% *ad valorem duty*, in 1867, and was subsequently extended to 20% for certain goods in 1871. G.D. Patterson, *The Tariff in the Australian Colonies 1856-1900*, F.W. Cheshire, Melbourne, 1968.

4 Sutherland, 1888, vol.2, pp.606,618,623 & 626; *Sands & McDougall Directory*, 1870.

5 Sutherland, 1888, vol.2, pp.606 & 626.

6 *Australian Leather Journal*, 15.08.1902, p.223.

Perhaps more importantly, the directories show that there was also a substantial non-factory based manufacturing industry in Fitzroy by 1870, particularly in the clothing, footwear and engineering trades, and this was to have a major influence on the later development of manufacturing in the municipality. It was to be the transition of these manufacturing industries from small workshop'based and 'backyard' operations to factory-based enterprises that contributed to a large part of Fitzroy's factory development in the latter part of the 19th century. Despite this apparently solid start, the Statistical Registers suggest that by 1874, growth in the number of factories in Fitzroy was lagging behind that of other inner suburbs such as Collingwood, Emerald Hill (South Melbourne), Hotham (North Melbourne) and Richmond. In part this trend may reflect changes to the definitions used by collectors for the Statistical Registers as much as actual changes to the number of factories in Fitzroy. However, at the same time, the high level of urban development in Fitzroy may have been deterring some new factory building due to the high cost of land compared with the undeveloped urban fringe to the north and cheaper river flat land of Collingwood. Nevertheless, there was clearly substantial manufacturing growth in Fitzroy between 1870 and 1890, even if growth was not sustained continuously throughout the period.

During the 1880s, further changes in the way information was collected and compiled for the Statistical Registers, appears to have distorted the true manufacturing trends. one effect of this was that whilst manufacturing employment and the number of mechanically-powered factories in Fitzroy show a significant increase between 1880 and 1890, there was a slight fall in the total number of factories recorded *(table 2)*. Other contemporary sources reveal that both new factories were opening in Fitzroy and many existing businesses were undergoing rapid expansion throughout the 1880s.

The engineering trades witnessed one of the most rapid growth rates amongst Fitzroy's manufacturing industries during the 1880s. Firstly the coach-building and wheelwright trades began to move towards more factory-based production with larger workshops and new steam-powered machinery. The manufacture of new vehicles took on increasing importance over repair-work with new wagons and drays being needed to transport raw materials and finished goods to and from local factories and a growing demand for fine buggies and carriages from the newly rich urban gentry.

A considerable concentration of coach-building works developed during this period in the narrow, back- streets running between Nicholson and Brunswick Streets, north of Johnson Street. William Dalrymple, for example, had established a coach building business at the corner of Westgarth & Fitzroy Streets in 1878. Within ten years he was employing 18 to 25 hands in a brick and corrugated-iron clad factory measuring 66 feet by 100 feet. He made a specialty of fine broughams, hansoms and wagonettes, receiving orders from as far away as Queensland and Tasmania. The Phoenix Carriage Company was established at the corner of Brunswick & St. David Streets in 1868. Pony phaetons, light buggies and lorries were the principal vehicles produced. In 1886 the business was bought by William Hobbs who expanded the works to cover two blocks with a 140 foot frontage and a workforce of 30 to 50 men. Perhaps the most remarkable growth though, was experienced by the business of W. & A. Dowell who employed just four hands in 1884, when their business was established in Argyle Street. Four years later their workforce had grown to 40 and their works sprawled over one and a half acres, with extensive showrooms on Johnson Street.[1]

The only surviving building from this important localised concentration of coach factories, is the small two-storied brick building at 354 Fitzroy Street. Although not built until 1890 or 1891, it was in close proximity to most of the other important coachworks built during the previous decade, and it was first occupied by J. Hackett who had previously been operating as a manufacturer of 'Safety cabs' at 257-263 Brunswick Street. This building was occupied by James Bull in 1910, whose coachworks covered most of the block from Johnson Street back to Argyle Street. By the mid-1920s it was occupied by another coachbuilder, W. Siddall, and was later used as both an auto-wreckers and a motor garage providing almost 100 years of continuous association with the road transport.[2]

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[1] Sutherland 1888, vol.2, pp.597, 599 & 615.

[2] *Sands & McDougall Directories*

Table 3: Boot & Shoe Factories in Fitzroy, Collingwood & Brunswick 1895-1901.
compiled from The Statistical Register of Victoria, 1895-1901.

Municipality	Year	Total Number of Works	Number of Steam Powered Works	Number of Gas Engine Powered Works	Combined Motive Power of Engines h.p.	Total Number of Employees		Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £	Total Number of Boot & Shoe Uppers Produced pairs	Total Number of Boots & Shoes Produced" pairs
						Male	Female				
Fitzroy City	1895	9	n.a.	n.a.	n.a.	480	127	28,420	n.a.	461,187	478,573
Fitzroy City	1900	23	-	14	81	739	305	19,540	21,160	6,312#	911,574
Fitzroy City	1901	19	1	11	71	712	301	17,750	17,670	21,272#	745,362
Collingwood City	1895	25	n.a.	n.a.	n.a.	888	374	23,080	n.a.	508,014	796,450
Collingwood City	1900	29	2	16	177	1,286	561	32,980	31,480	112#	1,234,256
Collingwood City	1901	31	4	15	201	1,353	586	34,050	32,450	31,220#	1,223,413
Brunswick Town	1895	3	n.a.	n.a.	n.a.	89	5	700	n.a.	60,000	75,000
Brunswick Town	1900	5	-	2	6	128	5	1,070	1,750	- #	190,583
Brunswick Town	1901	5	-	2	8	95	31	1,250	2,800	- #	152,368

NOTES: " Totals excluding slipper production.
These totals include only uppers produced for use other than within the factory.

The 1880s, also saw the emergence of a significant number of small engineering works and foundries in Fitzroy, many of which developed a close interdependence with other local manufacturing industries for which they produced specialised equipment. George Scott & Sons, at 104 Young Street, began producing gas engines during the early 1880s, which became a popular source of cheap motive power for boot manufacturers, printers and butchers. John Grayson & Son had moved from Collingwood in 1868, to a small premises in Brunswick Street, but in 1887 they moved again to a larger brick building at the corner of Johnson & Young Streets. Here they built small steam engines and other manufacturing machinery, and in 1899 produced the engine for the first internal-combustion powered motor-car built in Australia. John Butt opened the Fitzroy Scale Factory at 96-100 Gertrude Street, in 1882, and used his earlier experience with the leading British scale makers W. & T. Avery to manufacture and repair accurate platform weighing machines, agate beams, counter scales and bronze, brass and iron weights.[1]

In 1887, D. Ballingal opened an engineering works at 123 Johnson Street where he specialised in producing boot-manufacturing machinery. Two years later, H.M. Small & W.T. Shattell opened another engineering factory a little further along Johnson Street, where they specialised in the manufacture of biscuit making, bread-making, jam-making and confectioners machinery. By 1902, their biscuit cutters, dough kneaders, dough brakes and 'Climax' continuous ovens had an Australia-wide reputation.[2]

In the same way that Melbourne's manufacturing boom was creating new markets for specialist engineering products, the rapid urbanisation of the city during the 1880s also created larger markets of domestic and household goods and opportunities for other specialist manufacturers to establish themselves. Fitzroy, with its existing manufacturing and retail trades, and its proximity to the centre of Melbourne, gained a significant share of the innovative new manufacturing enterprises established during the 1880s. Peter Gibaud & Sons, for example, established themselves as brush and broom manufacturers at 113 Smith Street, Fitzroy, in 1882. By 1888 they had developed not only an extensive retail trade but also held large contracts with the Post Office Department, the Collingwood & Fitzroy councils and the Melbourne Hospital.[3] In 1885, the Weston Brothers took over the Victorian Steam Washboard Manufactory, established by J. Randall at 81-5 Rose Street in 1867, and expanded the business producing not only washboards, but also patent American thermometers, chamber churns, knife boards and hay rakes.[4]

Another significant development in Fitzroy manufacturing during the 1880s, was the emergence of large proprietary companies that linked substantial Fitzroy-based manufacturing enterprises with chains of retail outlets throughout metropolitan Melbourne and the larger Victorian country towns. Often these firms were large importers as well as manufacturers.

T. Moran and F.J. Cato were probably the first to develop a significant tied retail and manufacturing business in Fitzroy, beginning with a small grocery shop in 1880. Within four years they were operating six shops throughout Fitzroy and surrounding suburbs. The oldest surviving Moran & Cato building is an ornate four-storey structure at the corner of Brunswick and Victoria Streets, built in 1882. The ground floor of this building served as the central retail store, whilst the upper floors were used for administrative offices and warehousing. By 1905, Moran & Cato had built a larger six-storey warehouse in Victoria Street adjacent to the earlier building. Here they not only sorted and packaged imported products like tea and coffee for distribution to their various stores, but also manufactured a number of special blended products such as essences, baking powders, jelly crystals, self-raising flour and 'Lyfa' salt. Moran & Cato also built stables in North Fitzroy at the corner of Holden & Rae Streets which survive as well.[5]

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[1] Sutherland 1888, vol.2, pp.602,605; Smith, vol 1, p.579.
[2] Smith, vol.1. pp, 577-8
[3] Sutherland 1888, vol.2, p.604.
[4] Sutherland 1888, vol.2, p.622.
[5] *Fitzroy: Melbourne's First Suburb*, p.202; Smith, 1903, vol.1, pp.514-5.

Table 4 **A Comparison of Factory & Non-Factory Manufacturing in Fitzroy 1870, 1900 & 1930.**
compiled from the Sands & McDougall Directories.

FITZROY - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930	
	1870	1900	1930	SOUTH FITZROY	NORTH FITZROY
FOOD, DRINKS & TOBACCO					
breweries	1	1	-	-	-
cordial & aerated water manufrs.	2	6	7	2	5
vinegar, sauce & pickle manufrs.	-	2	2	-	2
jam manufrs.	1	-	-	-	-
flourmillers & flour manufrs.	1	2	-	-	-
muffin manufrs.	2	-	-	-	-
biscuit & confectny manufrs.	-	3	4	4	-
wholesale & manufg. bread bakers	-	5	1	-	1
essence manufrs.	-	-	1	-	1
cigar & cigarette manufrs.	-	5	1	1	-
other food products	-	1	1	-	1
subtotals	*7*	*25*	*17*	*7*	*10*
CLOTHING & TEXTILES					
hat & cap manufrs. & hat works	4	5	2	1	1
straw hat manufrs.	-	2	2	2	-
umbrella manufrs.	1	1	-	-	-
oil skin manufrs.	-	1	-	-	-
underclothing & corset manufrs.	1	5	1	-	1
shirt factories	-	3	1	1	-
shirt manufrs.	-	-	2	1	1
robe manufrs.	-	-	1	1	-
clothing manufrs.& factories (unspec.)	5	5	9	8	1
bedding & quilt manufrs.	-	2	1	1	-
knitted goods manufrs.	-	-	2	-	2
knitting mills & factories	-	-	5	3	2
knitting works	-	-	1	1	-
hosiery & stocking manufrs.	-	2	-	-	-
embroidery & button badge manufrs.	-	-	2	1	1
manufg. furriers	-	-	1	1	-
subtotals	*11*	*26*	*30*	*21*	*9*
FOOTWEAR					
boot & shoe manufrs. & factories	2	29	30	19	11
boot upper manufrs.	-	1	-	-	-
boot sole & heel manufrs.	-	-	3	3	-
slipper manufrs.	-	-	2	2	-
children's shoe manufrs.	-	-	1	1	-
subtotals	*2*	*30*	*36*	*25*	*11*

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930	
	1870	1900	1930	SOUTH FITZROY	NORTH FITZROY
ENGINEERING & METAL PRODUCTS					
coachbuilders	12	14	8	4	4
coach factories & carriage works	-	4	-	-	-
motor body builders	-	-	1	1	-
motor body fittings manufr.	-	-	1	1	-
engineers	-	10	15	10	5
iron founders	-	2	4	1	3
stove & oven manufrs.	-	4	1	1	-
brass founders & finishers	-	-	3	1	2
steelworks	-	-	1	-	1
saw & cutlery manufrs.	1	-	1	1	-
bootmaking machinery manufrs.	-	-	1	1	-
machinery manufrs. (unspecified)	-	-	3	2	1
nail & wire products manufrs.	-	2	3	1	2
other misc. metal products manufrs.	-	8	1	1	-
subtotals	*13*	*45*	*43*	*25*	*18*
NOXIOUS TRADES & ANIMAL BY-PRODUCTS					
soap & candle manufrs.	-	1	-	-	-
tanners & fellmongers	-	-	1	1	-
harness manufrs.	-	2	-	-	-
other leather goods (non footwear)	-	-	4	4	-
subtotals	-	*3*	*5*	*5*	-
TIMBER PRODUCTS & FURNITURE					
timber mills & joinery works	4	4	2	2	-
chair manufrs.	-	-	1	1	-
blind manufrs.	1	2	-	-	-
furniture manufrs. (unspecified)	1	8	21	13	8
mantlepiece manufrs.	-	1	-	-	-
box, case & trunk manufrs.	1	1	5	3	2
wood block floor manufrs.	-	-	1	-	1
subtotals	*7*	*16*	*30*	*19*	*11*

FITZROY - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930	
	1870	1900	1930	SOUTH FITZROY	NORTH FITZROY
FOOD, DRINKS & TOBACCO					
bakers	9	18	6	3	3
confectioners	7	46	111	57	54
pastrycooks	1	3	15	8	7
subtotals	*17*	*67*	*132*	*68*	*64*
CLOTHING & TEXTILES					
hatters	1	3		-	-
milliners	5	3	11	11	-
hat & cap makers	3	-	-	-	-
straw hat makers	1	-	-	-	-
tailors	16	33	22	11	11
dressmakers	25	40	16	6	10
dress & mantle makers	6	-	-	-	-
mantle makers	1	1	11	8	3
costumiers	-	22	22	16	6
machine sewers & machinists	2	-	-	-	-
collar makers	2	-	-	-	-
white workers	-	-	2	1	1
fur & fabric dyers	1	5	3	3	-
furriers	-	5	3	3	-
subtotals	*63*	*112*	*90*	*59*	*31*
FOOTWEAR					
boot finishers & closers	1	-	1	1	-
boot sewers & machinists	1	-	1	1	-
boot upper machinists	-	1	1	1	-
shoe makers	4	1	-	-	-
boot makers	63	72	10	5	5
boot repairers	-	1	44	25	19
subtotals	*69*	*75*	*57*	*33*	*24*

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930	
	1870	1900	1930	SOUTH FITZROY	NORTH FITZROY
ENGINEERING & METAL PRODUCTS					
wheelwrights	3	2	1	1	-
coach painters	-	1	-	-	-
motor body painters & trimmers	-	1	1	1	-
motor mechanics & engineers	-	-	8	4	4
blacksmiths	15	12	2	-	2
farriers & shoeing forges	6	8	2	1	1
tinsmiths & whitesmiths	5	4	-	-	-
locksmiths & gunsmiths	-	2	2	2	-
goldsmiths, watchmakers & manufg. jewellers	8	8	7	4	3
jewellers	2	7	5	4	1
cutlers	1	1	1	1	-
ornamental ironworker	-	-	1	-	1
metal spinners	-	-	1	-	1
die sinkers	-	-	2	2	-
metal workers & wire workers	-	-	8	3	5
tank makers & sheet metal workers	-	-	8	2	6
scale makers	-	-	1	1	-
cycle builders & cycle engineers	-	6	5	3	2
cycle repairers	-	-	2	-	2
subtotals	*40*	*52*	*57*	*29*	*28*
OTHER ANIMAL PRODUCTS					
saddlers & harness makers	6	6	4	2	2
leather cutters	2	-	-	-	-
subtotals	*8*	*6*	*4*	*2*	*2*
TIMBER PRODUCTS & FURNITURE					
wood carvers & turners	7	1	1	1	-
chair makers	-	-	1	1	-
chair caners	1	-	-	-	-
cabinet makers	10	10	4	2	2
upholsterers	3	8	8	5	3
coopers	2	-	-	-	-
joiner & cabinet maker	1	-	-	-	-
staircase builder	-	-	1	-	1
subtotals	*24*	*19*	*15*	*9*	*6*

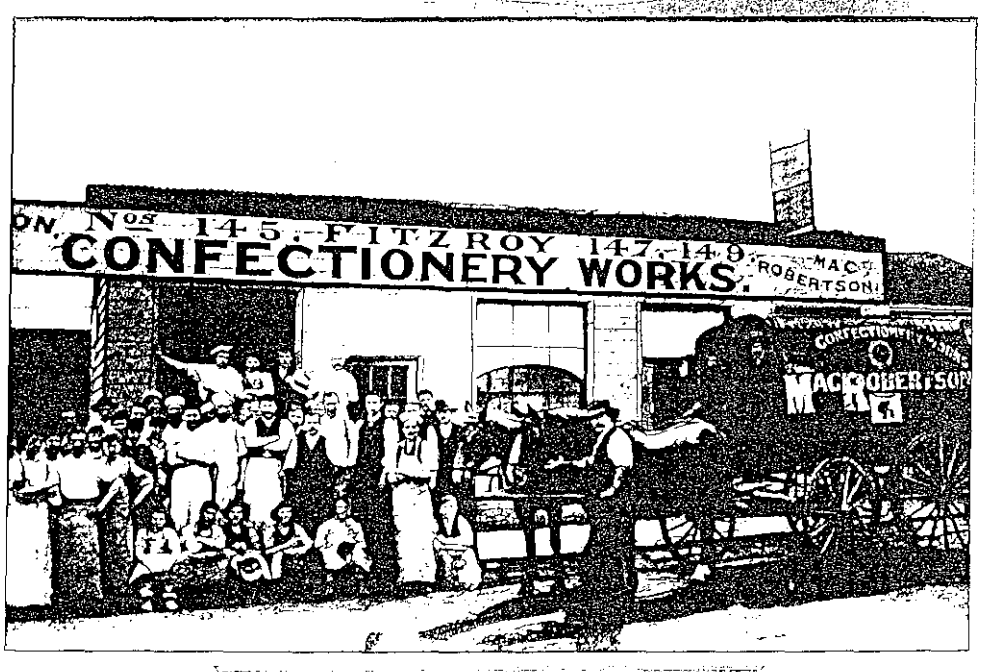
ble 4 continued: A Comparison of Factory & Non-Factory Manufacturing in Fitzroy 1870, 1900 & 1930.

ZROY - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930	
	1870	1900	1930	SOUTH FITZROY	NORTH FITZROY
DING PRODUCTS					
ous plaster manufacturers	-	-	1	-	1
rete & cement works	-	-	3	1	2
amental masons works	-	5	2	1	1
subtotals	-	*5*	*6*	*2*	*4*
ICALS					
t, varnish & ink manufrs.	-	1	3	2	1
polish manufrs.	1	-	1	-	1
ish manufrs.	-	-	2	2	-
infectant manufrs.	-	-	1	1	-
alyptus oil manufrs.	-	1	-	-	-
ellaneous chemical manufrs.	-	5	2	1	1
subtotals	*1*	*7*	*9*	*6*	*3*
R VEGETABLE PRODUCTS					
sters & bookbinders	10	11	11	10	1
r bag & paper products manufrs.	-	3	5	5	-
& twine manufrs.	-	1	1	1	-
sh & broom manufrs.	-	4	5	3	2
subtotals	*10*	*19*	*22*	*19*	*3*
ELLANEOUS					
manufrs.	-	-	1	1	-
ss Works	-	-	1	-	1
cal instrument manufrs.	1	1	2	1	1
ure frame makers & manufrs.	-	2	3	2	1
manufrs.	-	1	-	-	-
ews manufrs.	-	-	2	2	-
or & glass manufrs., cutters, &c.	1	2	2	2	-
works	-	2	1	1	-
works	1	1	2	-	2
misc. & unspecified manufrs.	2	5	3	3	-
btotals	*5*	*14*	*17*	*12*	*5*
S	56	190	215	143	72

FITZROY - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930	
	1870	1900	1930	SOUTH FITZROY	NORTH FITZROY
BUILDING PRODUCTS					
modellers	-	4	4	3	1
subtotals	-	*4*	*4*	*3*	*1*
CHEMICALS					
subtotals	-	-	-		
OTHER VEGETABLE PRODUCTS					
wicker & bamboo workers	-	2	1	1	-
basket makers	1	3	-	-	-
cork cutters	1	-	-	-	-
subtotals	*2*	*5*	*1*	*1*	-
MISCELLANEOUS					
churn maker	1	-	-	-	-
filter maker	-	-	1	1	-
subtotals	*1*	-	*1*	*1*	
TOTALS	224	340	361	205	156



An Early Photograph 1885

Another sector of the Fitzroy food industries that saw ties develop between manufacturing and retailing during this period was flour milling. William S. Kimpton had opened his first baker's shop in Brunswick Street, Fitzroy, in 1857, only a year after the Downing Brothers built the 'Foyle Flour Mill' (Fitzroy's first flour mill) nearby. By the early 1870s, Kimpton was operating three bakeries in Fitzroy and was regarded as one of Victoria's largest bakers, with a consumption of up to 7 tons of flour a week. In 1870 he purchased the Foyle Flour Mill and after leasing it to Joseph Walker & Mortimer Rush for five years, he renamed it the Union Flour Mills and formed a partnership with Rush to take it under his direct control. By 1882, Kimpton had disposed of his bakery interest and was sole proprietor of the Union Flour Mills. Within another four years, he was one of the largest flour millers in Victoria, with an output of 180 tons a week. In 1887, Kimpton decided to move into the more modern roller milling technology and had a large well-equipped roller mill built next to Gillespie's Mill in Kensington, where there was a railway siding. He retained the Fitzroy mill also until 1897, when it was sold to George & John Blyth, who then operated it until 1905. This was surprising late for a flour mill with no direct railway access to be operating in Melbourne, but like Kimpton, the Blyths had connections in the baking trade.[1]

The Ackman's furniture retailing empire was also founded during the 1880s, with their first 'Monster Furniture Arcade' opening in Smith Street, Fitzroy. By the early 20th century Ackman's had diversified into furniture manufacturing in Fitzroy and opened a number of branch stores in the city and other suburbs.[2]

As with food products and furniture, Fitzroy-based boot & shoe manufacturers also greatly benefited for the development of cross ownership with the retail trade during the 1880s. Roelens & Burdett, of the Exhibition Boot Co., were probably the first large Fitzroy footwear manufacturer to establish a retail chain, beginning with their first store in 1880. Twenty years later, they had 11 retail branches throughout Melbourne & another four in country towns, all of which stocked their 'EBC' brand footwear. By 1888, Richard White was Fitzroy's largest boot & shoe manufacturer (and possibly the largest in Melbourne also) with a staff of 300 turning out 4,000-5,000 pairs of shoes a week at his three-storied factory in Young Street (this area is now occupied by Housing Commission flats). He had also established a chain a eight retail stores throughout the city and inner suburbs to sell his products.[3]

Establishment of the first factories north of Alexandra Parade and the gas works also occurred during the 1880s, following the subdivision and sale of large areas of vacant land in North Fitzroy. In 1883, Robert Hurst opened the first boot factory in North Fitzroy, on Heidelberg Road (now Queen's Parade), after dissolving a partnership with J. Yager with whom he had operated a boot factory in George Street.[4]

In 1890, Hurst followed the example of R. White and the Exhibition Boot Co. opening his first dedicated retail store in Smith Street and never looked back. After the founder's death in 1895, the business was taken over by three sons and continued to expand to the point where they had a chain of 18 stores throughout Melbourne and Ballarat. The factory at the corner of Queens Parade and Grant Street swelled to a series of two-storied buildings covering half an acre and employing several hundred, before going out of business some tine between 1910 and 1920. Most of the site appears to have been rebuilt on since, with the possible exception of the building at 2-6 Grant Street, now occupied by Andrew Millis Fabrics.[5] By 1889, Edward, James & Elizabeth Smyth had established a steam-powered biscuit factory in Best Street, North Fitzroy and John Dunne was operating a cordial factory in Birkenhead Street.[6] Within another ten years, food products, cordial manufacturers, footwear and small engineering works and foundries would emerge as the major concentrations of factories in North Fitzroy, and this pattern was to continue until after 1930.[7]

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[1] Lewis, 1990, pp.37-8, 56-7.

[2] *Fitzroy: Melbourne's First Suburb*, p.202.

[3] *Australian Leather Journal*, 16.06.1902, p.83 & 15.08.1902, p.223; Sutherland, 1888, vol.2, p.623.

[4] Sutherland 1888, vol.2, p.606.

[5] Sutherland, 1888, vol.2, p.606; *Australian Leather Journal*, 15.07.1902, p.146; *Sands & McDougall Directories*.

[6] Sutherland 1888, vol.2, p.697; Smith, vol.2, pp.196-7.

[7] *Sands & McDougall Directories*.

Manufacturing in Fitzroy suffered less than that in the other northern suburbs during the economic depression of the early 1890s. Fitzroy's manufacturing trades began to recover earlier than those in other suburbs. Whilst the number of factories in Collingwood declined between 1890 and 1900, the number of factories in Fitzroy recorded by the *Statistical Register* increased by 33%. By 1900, the *Statistical Register* recorded 102 factories in Fitzroy employing a total of almost 3,500 *(table 4)*. In part, the gains recorded during the 1890s were probably due to changes in minimum size of boot factories and clothing factories counted by collectors for the *Statistical Register,* but there was undoubtedly also a significant increase in the total number of manufacturing firms in business because the Sands & McDougall Directories suggest that by 1900, the number of factories in Fitzroy had actually reached a total closer to 256 *(table 4)*. By 1900, Fitzroy had regained its former position as the forth largest manufacturing municipality in Melbourne, behind only Collingwood, South Melbourne and the City of Melbourne itself.[1]

Perhaps more significantly, Fitzroy had by this time developed one of the most diverse ranges of manufacturing industries of any Victorian municipality. This can be seen both in the wide spread of manufacturing businesses recorded in table 4, with at least five firms in every manufacturing sector,[2] and by the many different types of unusual businesses in some of the smaller sectors. The 'Other Vegetable Products' category, for example, included four brush & broom manufacturers, a rope & twine manufacturer, and three paper bag & paper products manufacturers, whilst, the 'Miscellaneous' category included other unusual businesses such as a musical instrument builder, two picture frame and mirror manufacturers and a pram manufacturer.

In 1878, the Collingwood & Fitzroy Gas Company amalgamated with the Metropolitan Gas Company and production at Fitzroy was wound down, due to the high cost of carting coal from the Yarra wharves. The last gas retorts at the Fitzroy gasworks were closed in 1927, but the site continued to be used for gas storage and distribution and construction workshops were established to manufacture and repair equipment for the Metropolitan Gas Company's other gasworks. During the 1920s, several larger new gas holders were built on the site, including a two and a half million cubic feet capacity holder completed in 1927, which is claimed to have been the first large fully-welded steel structure built in the world.[3] For many years the gasometers were a prominent landmark on the Fitzroy skyline. The site is still used by the Gas & Fuel Corporation today, but the large gasometers were demolished during the 1970s, after conversion to natural gas in the same rationalisation which saw the demise of all the other metropolitan gasworks. Only two small 20th century ancillary buildings survive in the Fitzroy works, near the south-west corner of the site.

The strongest manufacturing growth in Fitzroy during the 1890s occurred in the footwear sector. Here the number of manufacturing establishments with four or more employees increased by 155%, from 9 to 23, during the five years between 1895 and 1900. Employment in Fitzroy's boot & shoe factories reached 305 by 1900, when over 900,000 pairs of shoes were produced. Fitzroy's footwear manufacturing industry was by this time the third largest of any municipality in Victoria. In terms of both the number of boot & shoe factories and their combined workforce, the Fitzroy's footwear industry was over three quarters the size of that in Collingwood (Victoria's leader) and only slightly behind that of the City of Melbourne. In addition, although the average size of the Fitzroy boot & shoe factories was slightly smaller than those in Collingwood, average annual output per worker was considerably higher. The large number of surviving boot & shoe factories in Fitzroy built during the late 1890s and early 1900s is in itself a reflection of the tremendous growth that was occurring in this sector during this period.

The boot & shoe factories were not the only manufacturers in Fitzroy who gained from the abolition of Inter-Colonial trade tariffs. MacRobertson's confectionery business also flourished with new markets and sales throughout Australia. According to the company's own folklore, the young MacPherson Robertson began his confectionery empire by cooking up boiled sweets in an old nail can in the bath room at the back of his mother's small cottage in Argyle Street, Fitzroy. By

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[1] This comparison is based on the number of factories recorded in the *Statistical Register* for 1900.

[2] Compare table 4 with similar tables compiled from the *Sands & McDougall Directories* for Collingwood and Preston.

[3] Proudley, *circle of influence,* 1987, pp.304-5; H.E. Grove, 'Gasholder and Structural Building with the "Electric Arc"', in *Proceedings of the Victorian Institute of Engineers,* 1928, pp.51-52.

1885, he was well established employing 40 hands in a small single-storied timber factory at 145-9 Argyle Street on the north side adjacent to what is now called MacRobertson's Lane. Despite the depression, he continued to expand his business throughout the 1890s, adding new factories and new products, and after the removal of interstate import duties in 1901, he established distribution warehouses in all of the Australian capital cities and expanded sales Australia-wide.

MacRobertson was one of the first manufacturers in Fitzroy to drive his machinery by electricity after the A.U. Alcock Co. extended electricity distribution from their Richmond power station into Fitzroy in 1905, and he was a firm believer in having a sterile and utilitarian workplace. His main factories on the corner of Argyle and Gore Streets had meticulously white washed exteriors which earned the factory the name 'The Great White City'. By 1923, MacRobertson was making 700 different types of confectionery at the rate of several tonnes a day, and by 1930, the Fitzroy works of the company had sprawled over 30 acres with 19 separate buildings in which 2,600 people were employed. The influence that MacRobertson's expansion had on Fitzroy's manufacturing industry during the early twentieth century can be seen by the fact that by 1930 the company was employing almost a third of Fitzroy's entire manufacturing workforce, whilst their factories covered 3.25 % of all land in the municipality.[1]

Apart from the boot & shoe factories and MacRobertson's confectionery works, the most important manufacturing industries in Fitzroy by 1930 included cordial & aerated water factories, hat factories, shirt and clothing factories, knitting mills, small engineering works, furniture manufacturers, and brush & broom manufacturers.

It is surprising that manufacturing in Fitzroy continued to grow up to the early 1950s, given the severe space constraints in the municipality, but the overall rate of growth was considerably less than that in the more northern suburbs. After 1951, manufacturing employment in Fitzroy declined significantly as many of the older and larger firms relocated to larger sites in the outer suburbs. The general trend is well illustrated by the demise of MacRobertson's factories which were closed in 1966 when the firm moved to a large new plant built at Ringwood. Most of the former MacRobertson factory buildings have survived but they have been converted to a variety of other commercial uses, such as offices, showrooms & warehouses.

Analysis of Surviving Factory Buildings in Fitzroy

The *Sands & McDougall Directory* indicates that there were about 228 factories operating in Fitzroy in 1930. By comparison, this study has identified 96 former factories and related buildings in Fitzroy, of which 82 were built before 1931. Thus, slightly over a third (36%) of the factory buildings in existence throughout Fitzroy in 1930 survive today.

Table 5 compares the surviving pre-1931 factory buildings in Fitzroy with the original proportions of each manufacturing sector in the municipality, by dividing the surviving buildings into groups according to the manufacturing sector in which they were being used in 1930. Interestingly, this analysis shows that the relative historical importance of each manufacturing sector in 1930, is closely reflected in the proportion of surviving factory buildings. The only sector that shows a major disparity is Food & Drinks, and this is largely because of the large number of surviving buildings from the MacRobertson complex, which has distorted the general trend.[2]

If the distribution of surviving factory buildings is compared with the historical distribution of Fitzroy's factories indicated by the 1930 Sands & McDougall Directory, it can be seen that factories in South Fitzroy have faired rather better than those in North Fitzroy. Whilst North Fitzroy incorporated 33% of all Fitzroy factories listed in the 1930 directory, it accounts for only 15% of surviving factory buildings identified in this study *(see tables 4 & 5 and maps 4 & 5)*. Many of the smaller sectors of manufacturing in North Fitzroy, such as timber products & furniture, chemicals, and miscellaneous goods, have no surviving examples of factory buildings.

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[1] *A Young Man and a Nail Can*

[2] Of the 19 different buildings occupied by MacRobertsons confectionery works in 1930, at least 13 were found to survive today.

Table 5: Analysis of Surviving Factory Buildings in Fitzroy and Comparison with Historical Distribution by Factory Type.

compiled from Sands & McDougall's Directory of Victoria for 1930 & Summary List of Sites Examined

MANUFACTURING SECTOR	Sands & McDougall's Directory of Victoria - 1930		Factory Study - Surviving Factory Buildings Recorded in Fitzroy		
	Number of Factories in Fitzroy	Proportion of Total	Number Built pre 1931	Proportion of pre 1931 Total	Number Built post 1930
Food & Drinks	30	13.2%	28	34.1%	4
Clothing & Textiles	30	13.2%	10	12.2%	2
Footwear	36	15.8%	11	13.4%	1
Engineering & Metal Products	43	18.9%	13	15.8%	7
Noxious Trades & Animal By-products	5	2.2%	1	1.2%	-
Timber Products & Furniture	30	13.2%	10	12.2%	-
Building Materials	6	2.6%	-	0.0%	-
Chemicals	9	3.9%	3	3.7%	-
Other Vegetable Products	22	9.5%	1	1.2%	-
Miscellaneous Products	17	7.5%	5	6.2%	-
TOTALS	228	100%	82	100%	14

By the early 1900s there were three or four boot factories in Fitzroy with a workforce of over 100, including R. Hurst's and R. White's, but in contrast to Collingwood where large boot factories were increasingly coming to dominate the industry, in Fitzroy it was the medium sized boot factories that were responsible for most of the growth in footwear manufacturing during the 1890s and early 1900s.[1]

Generally speaking the boot & shoe manufacturing industry in Fitzroy was very fluid throughout the period between 1890 and the 1920, with many of the small and medium sized firms regularly changing partners or premises. New firms were constantly being established, whilst others disappeared suddenly after only a few years in business. In part this trend was probably due to the tough economic conditions of the time, but it was also a direct response to some fundamental technological changes. Firstly, the gas-powered internal combustion engine developed in Europe during the 1870s, become available in Victoria by the late 1880s, providing a far cheaper source of mechanical power than steam engines for driving machinery in small factories. Gas engines were being made by several local engineering firms and could be bought and installed for £100-200. Unlike a steam engine they did not require either a boiler or tall chimney and it was not necessary to employ a specially qualified or accredited operator to drive them. After about 1905, electric power also became available in Fitzroy, further reducing the cost of driving machinery in small factories.

Concurrently with the introduction of new forms of motive power, an enormous range of new bootmaking machinery became available through overseas developments (mainly in America), enabling almost every aspect of the boot & shoe manufacturing process to be effectively mechanised, with the possible exception of 'clicking', the extremely skilled task of matching and cutting out leather for shoe uppers. One of the most important contributors to this process of mechanisation, was the United Shoe Machinery Co. of Boston, U.S.A., which opened offices and showrooms in both Sydney and Melbourne during the 1890s. This company had a long association with the development of boot & shoe making machinery in America and held dozens of worldwide patents for an enormous range of products from sewing machines and lasting machines, to welting machines, sluggers, heelers, heel trimmers and presses covering many well-known brands such as 'Goodyear', 'Globe', 'Universal' and 'Lightning'. Initially the company was willing to sell its machines outright, but by the late 1890s, it had changed to a system of leasing out machinery on which a royalty was paid based on the extent to which the machine was used. For example a sewing machine would be fitted with a counter and royalties were then charged at the rate of about 6 shillings per 1,000 stitches.

Many local boot & shoe manufacturers complained vocally but having to continuously pay royalties on every machine they used, but the United Shoe Machinery Co. had a monopoly on almost all the best technology and so they had no choice. The main benefit for boot & shoe manufacturers, particularly for small to medium sized firms, was that they did not have to make a large initial outlay on machinery in order to set up a factory. At the same time, because the machines were leased, they also had access to all the latest developments as soon as they became available. On the other hand the United Shoe Machinery Co. gained a guaranteed income that could be ploughed by into the development of new ideas and new patents and by being the sole repair and maintenance agent it was effectively able to cut local engineering firms out of much of the market.[2]

Three buildings formerly used by the United Shoe Machinery Company (and its successor, the British United Shoe Machinery Company) as warehouses and workshops for the assembly, manufacture and repair of machinery, survive in Fitzroy today. These are a three-storey building at 102-110 Moor Street, (occupied between about 1905 and the mid 1920s) a two-storied brick building at 423-5 Smith Street (occupied between the mid 1920s and mid 1930s) and the large four-storied brick and glass building at 200 Alexandra Parade, which was specially built for the company in the late 1930s and used by them until the late 1970s. The comparative size of each of

[1] By 1900, the average size of boot & shoe factories in Fitzroy recorded by the *Statistical Register* was 45.4, compared with 63.7 for Collingwood. It is surprising that despite this difference, in size, employees in the Fitrzoy boot & shoe factories were producing on average 879 completed pairs of boots & shoes or uppers a year compared with an average of only 668 produced by each of their counterparts in Collingwood.

[2] See, for example, the *Australian Leather Journal*, 15.08.1900, p.161, 15.07.1902, p.156 & 15.09.1902, p.301 for comments on the leasing of boot & shoe making machinery and the royalities that were applied.

these buildings demonstrates the enormous growth in this firm's operations that occurred over the four decades from 1900 to 1940.

The large number of surviving boot & shoe factories in Fitzroy built during the late 19th and early 20th centuries, is itself a reflection of the tremendous growth in the industry that occurred during this period. Many of the firms that occupied the small to medium sized boot factories in Fitzroy leased rather than owned their premises, which is another factor that helps explain the ease with which new firms were able to enter the industry.

The two-storied brick factory at 62 Bell Street that has now been converted into apartments is typical of Fitzroy's medium-sized boot factories. It was built, in 1886, for Samuel Lang, who had previously been the manager of the well-known Ezywalkin Boot Factory. By 1888, Lang was employing 34 hands and selling the bulk of his output direct to the Ezywalkin chain of shoe stores. Later this factory was occupied by a series of at least three other footwear manufacturers over a period of only 20 years. They included T. Davis (between 1905 and 1910), Howgate & Hellings, formerly of the Phoenix Boot Factory in Collingwood (from 1910) and Spicer Bros. (during the 1920s & 1930s). Finally it was taken over during the late 1930s by the slipper manufacturer, D.Ellerton, who continued at the site until the early 1970s.[1]

The elegant two storey poly-chrome brick factory surviving at the corner of Argyle & Fitzroy Streets also served a number of boot & shoe manufacturers. It was built during the late 1880s, possibly as a speculative investment. The first occupiers, Richard Norgrove & L.F. Colbath, remained there for most of the 1890s and were followed by Irons & Piper (from about 1900), Irons & Co. (from about 1910) and Thomas Layton (from the early 1920s). Nearby, the former boot factory at the corner of Leicester and Fitzroy Streets was purpose-built for its first owners, G.Burston & F.Treleaven, in 1902. Over the previous seven years, this firm had occupied three other factories in Fitzroy, all of which were leased. Because their new factory filled the whole site, Burston & Treleaven had it designed with specially thick walls to support two extra floors in case future expansions created the need for additional space. They had the factory fitted out with all the most up-to-date American machinery powered by a 9 horsepower gas engine, built by Coulson & Co. of Melbourne, and by August 1902 were turning out 2,500 pairs of 'machine sewn' and 'fair stitched' shoes a week. The firm remained in business at this site until the 1930s, but the planned additional floors were never required.[2]

Fred Edgley commenced operations as a court shoe manufacturer at 195 (now 205-7) Scotchmer Street, North Fitzroy, in 1895. The surviving two-storied brick factory at this site is dated 1898, and continued to be used by the F. Edgley & Sons for the manufacturer women's pump shoes until at least 1930.[3]

Alongside the boot & shoe factories, clothing manufacture also emerged as an important industry in Fitzroy during the late 1880s and 1890s. By 1900, the *Sands & McDougall Directory* listed at least 26 clothing manufacturing firms operating in Fitzroy, including 5 described as hat & cap works, 2 as straw hat manufacturers, 5 as underclothing & corset manufacturers and 5 as general clothing factories*(table 4)*.

The Acme Shirt Factory, established in about 1882, was Fitzroy's leading clothing manufacturer during these years. By 1888, the company's products were of sufficient quality to win a gold medal at the Centennial Exhibition held in Melbourne. At about this time the company built a larger three-storey brick factory that now forms the central part of the surviving complex at 13-39 Victoria Street. In 1891, J.G. Hammond was manager, but he was subsequently replaced by R. Aitken Pryor, who came to Victoria with considerable experience in the mercery business in the North of England. The firm was the first large clothing manufacturer in Fitzroy and one of the first firms in Melbourne to introduce a production line process for shirt-making that allowed less skilled labour

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[1] Sutherland, 1888, vol.2, p.609; *Sands & McDougall Directories*.

[2] *Australian Leather Journal*, 15.09.1902, pp.298-300 & *Boot & Shoe Recorder Diary for 1923*; *Sands & McDougall Directories*.

[3] *Australian Leather Journal, Boot & Shoe Recorder Diary for 1923*; *Sands & McDougall Directories*.

to be used. By 1902, some 220 people were employed, most of whom were women, and the factory had considerably expanded with premises on both sides of Victoria Street incorporating offices, a salesroom, cloth store, stables and a steam laundry to wash and press all completed work, as well as the factory itself. Pryor prided himself on being a model employer, and was a member of both the Council of Manufacturers and the first clothing trade Wages Board.[1]

The Argyle Shirt Factory was also operating in Fitzroy by 1900, at the corner of Argyle & Gore Streets, being managed by Mrs M. Adam. The surviving single storey factory on this site continued to operate under the Arygle Shirt Factory name until the late 1920s. Other clothing manufacturers who had established factories in Fitzroy by 1900 included Mrs W. Ferguson at 142 Napier Street, Henry Bloomfield at 64 Westgarth Street, S. Schneiders & Sons in St David Street, and George H. Conroy, who commenced in the surviving small two-storey factory at 82 Bell Street in about 1895.[2]

A comparison between the *Sands & McDougall Directories* of 1900 and 1930, suggests that manufacturing growth in Fitzroy was more modest during the first three decades of the 20th century than it had been over the previous 30 years. By contrast, the *Statistical Registers* record an increase of 115% in the number of factories in Fitzroy between 1900 and 1910 alone, and a comparison of the 1910 figures with the *Victorian Year-Book* for 1935, suggests that another increase of 50% occurred over the next 25 years. It is necessary, however, to treat such comparisons with caution, because changes in the instructions given to collectors meant that the scope of official manufacturing statistics in the government published sources was considerably expanded. By 1935, the government's official definition of a factory had been broadened to cover a lot of businesses that would not traditionally have been regarded as factories, such as repair workshops, motor garages, retail bakeries and commercial laundries. Probably the true growth rate of factories in Fitzroy between 1900 and 1930, lies somewhere between the figures given in the official sources (*table 2)* and the *Sands & McDougall Directories (table 4)*, and whilst it is difficult to put an exact figure on it, it is clear that it was more modest than the growth occurring in either Collingwood or Brunswick over the same period.

Whilst the *Sands & McDougall Directory for 1930* may be incomplete in its coverage of Fitzroy's manufacturing industries, a close examination of the types of firms that were listed shows some interesting trends. The clothing, engineering and chemicals sectors all show considerable diversification between 1900 and 1930 in the types of businesses listed. In engineering, for example, the overall number of factories listed declined from 45 to 43, but within this total, engineering works, iron foundries and brass foundries had all increased in number, whilst coachbuilders, coach factories and carriage works had dropped dramatically from 18 to just 8 works. New types of businesses were also listed for the first time, such as a motor body builder, a motor body fittings manufacturer, a steelworks and a bootmaking machinery manufacturer.

In terms of both the number of factories operating and overall employment, footwear manufacture continued to be the most important individual manufacturing industry in Fitzroy throughout the period between 1900 and 1930. One of the few sectors manufacturing in Fitzroy that did show exception sustained growth in the directories between 1900 and 1930, was furniture factories. As with footwear factories, the large number of surviving buildings in Fitzroy formerly associated with furniture manufacturing during the early 20th century is a testament to the industry's strength during these years.

As Ackman's expanded their furniture retailing empire based in Smith Street, they opened a number of factories nearby to produce their own goods. The imposing two-storied brick factory with large windows at the corner of St. David and Hargreaves Street was built for Ackman's in 1918, close to the site of their main retail store that is now occupied a Safeway Supermarket. Meanwhile Johnston's Pty. Ltd. established a rival discount furniture store in Gertrude Street supplied from a number of their own factories in South Fitzroy of which the buildings at 99 George Street and 66 Leicester Street are two surviving examples.[3]

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[1] Sutherland, 1888, vol.2, p.730; Smith, 1903, vol.1, pp.544-5; *Sands & McDougall Directories.*

[2] *Sands & McDougall Directories.*

[3] *Fitzroy: Melbourne's First Suburb*, pp.202 & 208; *Sands & McDougall Directories.*

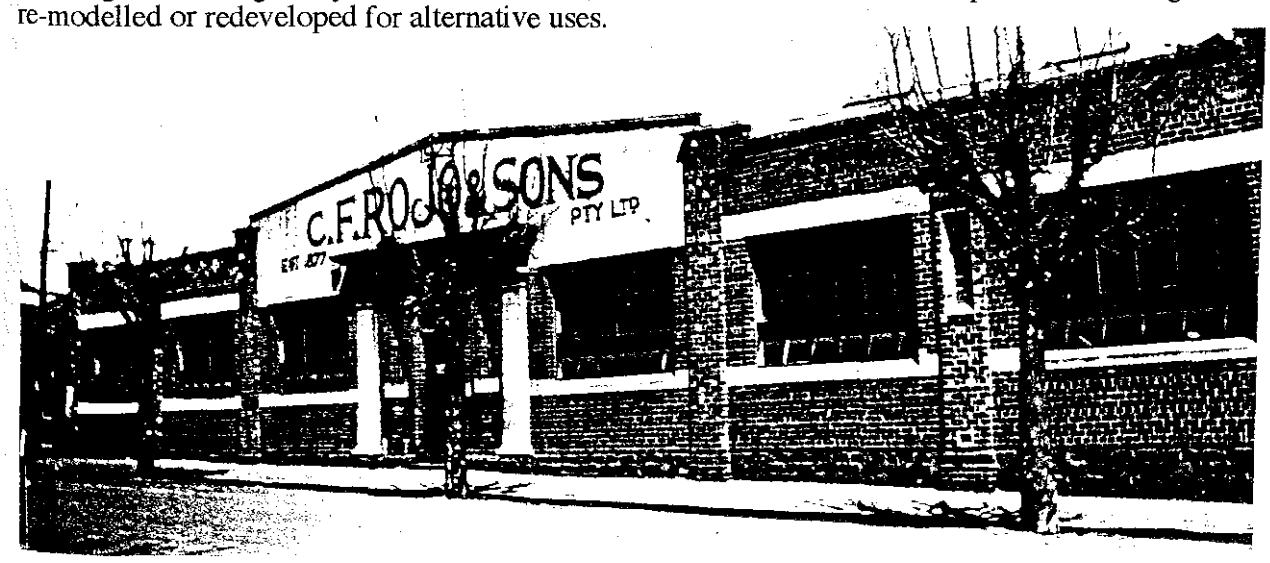
One the largest surviving pre-1930 factories south of Johnston Street is the single-storey brick building at the corner of Napier and St. David Streets, built in 1927, which until the early 1980s was still occupied by its original owners C.F. Rojo & Sons. This firm produced furniture and wood-turning work and was established in 1877, originally operating at a site in the city before moving to Fitzroy.[1]

Other smaller furniture factories that survive from the period between 1900 and 1930 include: the small brick-fronted factory at 100 Gore Street built in about 1920 for Lawson & Peterson, 'furniture manufacturers' and 'high class upholsters' (who still operated at the site until recently); and, Walter Roberts & Sons, single-storey corrugated-iron clad factory with a simple brick facade on corner of Young & Cecil Streets.[2] James Donly's former cordial factory in Birkenhead Street, North Fitzroy, was also used for furniture manufacturing for a number of years from 1903 by H. Gage, who produced wooden furniture, kegs and other wood ware, such as taps and stops for brewers and vignerons.[3]

Map 4 provides a comparison between the distribution of all factories throughout South Fitzroy in 1930 and the distribution of surviving factory buildings from the same period. Whilst much of the manufacturing in South Fitzroy in 1930 was concentrated along the main transport and retailing corridors of Brunswick Street, Johnson Street, Smith Street and Gertrude Street, most of the former manufacturing premises along these streets no longer survive. Apart from the large complex of MacRobertson confectionery factories and associated buildings in the vicinity of Gore Street and Kerr Street, the main concentration of surviving pre-1931 factories in South Fitzroy occurs in the area bounded by Victoria Street to the south and Brunswick and Nicholson Streets to the east and west.

In North Fitzroy, the bulk of the factories operating in 1930, were concentrated along the major thoroughfares of Queens Parade, Nicholson Street and St. Georges Road, but comparatively few of these have survived, which is similar to the situation in South Fitzroy. The remainder of North Fitzroy's factories were scattered fairly evenly throughout the suburb and a fair proportion of these survive, except in the south-west corner bounded by Church Street and Napier Street, an area devastated by reconstruction of several whole blocks for housing commission flats in the 1960s.

Of the 96 factory buildings in Fitzroy identified in this study, the majority are no longer being used for manufacturing purposes. At the time of survey, only 29% were still being used for some form of manufacturing activity, whilst 42% had some other commercial use (including offices, salesrooms & warehouses), 5% had some other non-manufacturing industrial use (including repair workshops), 8% had been converted for residential use, and 13% were vacant. Some 7% of the buildings, including many of the vacant ones, were also found to be in the process of being either re-modelled or redeveloped for alternative uses.



[1] *Fitzroy: Melbourne's First Suburb*, pp.155; *Sands & McDougall Directories*.
[2] *Sands & McDougall Directories*.
[3] Smith, 1903, vol.1, p.563; *North Fitzroy Conservation Study*.

COLLINGWOOD

The history of Collingwood's manufacturing industries share many parallels with those of neighbouring Fitzroy. Originally, the suburb was called East Collingwood because the name Collingwood had already been given to the area to the west of Smith Street, however, the latter area was renamed Fitzroy in the late 1850s, and Collingwood's name was subsequently shortened to its current form in 1874.

In comparison with Fitzroy, the topography of Collingwood, with the Yarra River on its eastern boundary and the large areas of low lying swampy land, had an important influence on the type of manufacturing industries that it developed. It larger overall area than Fitzroy also provided greater scope for manufacturing growth in the early part of the 20th century. In terms of both its number of factories and its total manufacturing workforce, Collingwood was more industrialised than any of the other northern suburbs by 1930, and after the municipalities of Melbourne and South Melbourne, it remained the third most important manufacturing area in Victoria up until the Second World War.

Collingwood's manufacturing industry had its origins in the pre-goldrush decade of the 1840s, and although many of the earliest activities were quite limited in scope in comparison to later developments, the suburb seems to have attracted a large number of novel and unusual enterprises that achieved some important firsts for manufacturing in Victoria. Collingwood's earliest recorded factory was Dight's flour mill, built on the banks of the Yarra River, just below the falls that now bear Dight's name.

John Dight was born in Campbelltown, N.S.W., and served an apprenticeship as a millwright & engineer in Sydney. He was involved in the construction of several windmills in Sydney, before moving to Melbourne in 1838, where he purchased 26 acres of farm land on the west bank of the Yarra River just below its junction with Merri Creek. Dight regarded the adjacent falls on the river (then known as Gardiner's Falls) as the ideal power-source for a flour mill, and together with a brother he built the Ceres Mill, which was completed in August 1841. Dight's mill was not only one of Victoria's first flour mills, but was also the first water-powered flour mill to be built in the Colony. Despite its early completion, delays in obtaining approval to dam the river at the falls (to provide the necessary head of water) meant that Dight's mill did not begin grinding flour until 1843, by which time there were already two water mills operating on the Plenty River and two steam mills in Melbourne.[1]

The mill was a substantial structure of three stories, being built in bricks imported from Launceston, but it was not well sited. There was sufficient fall to power only a relatively inefficient undershot type waterwheel and the river flow was not consistent enough for the mill to operate continuously throughout the year. In addition the mill was damaged by floods four times between 1844 and 1858 and was almost totally destroyed by fire in the mid-1850s. Despite this, Dight invested additional capital purchasing a steam engine and boiler for auxiliary power and in 1857 rebuilt the mill, with an additional bluestone wing that doubled its original size.[2] The site was re-used for a number of different industries throughout the late 19th and early 20th centuries and remains today one of the most significant sites early manufacturing in Melbourne.

Dight's Mill was joined during the late 1840s, by two other pioneering manufacturing works. Victoria's first glass factory was established by William Overton on the Collingwood flat in the vicinity of what is now Rokeby Street, (Glasshouse St. recalls this pioneering industry) and the Phoenix Coach & Lorry Factory was established by Roberts & Ferguson on Hoddle Street, in 1847.[3]

The 1850s gold rush decade, saw a major increase in Collingwood's population and the emergence of many new industrial enterprises in the municipality. Collingwood gained its own municipal

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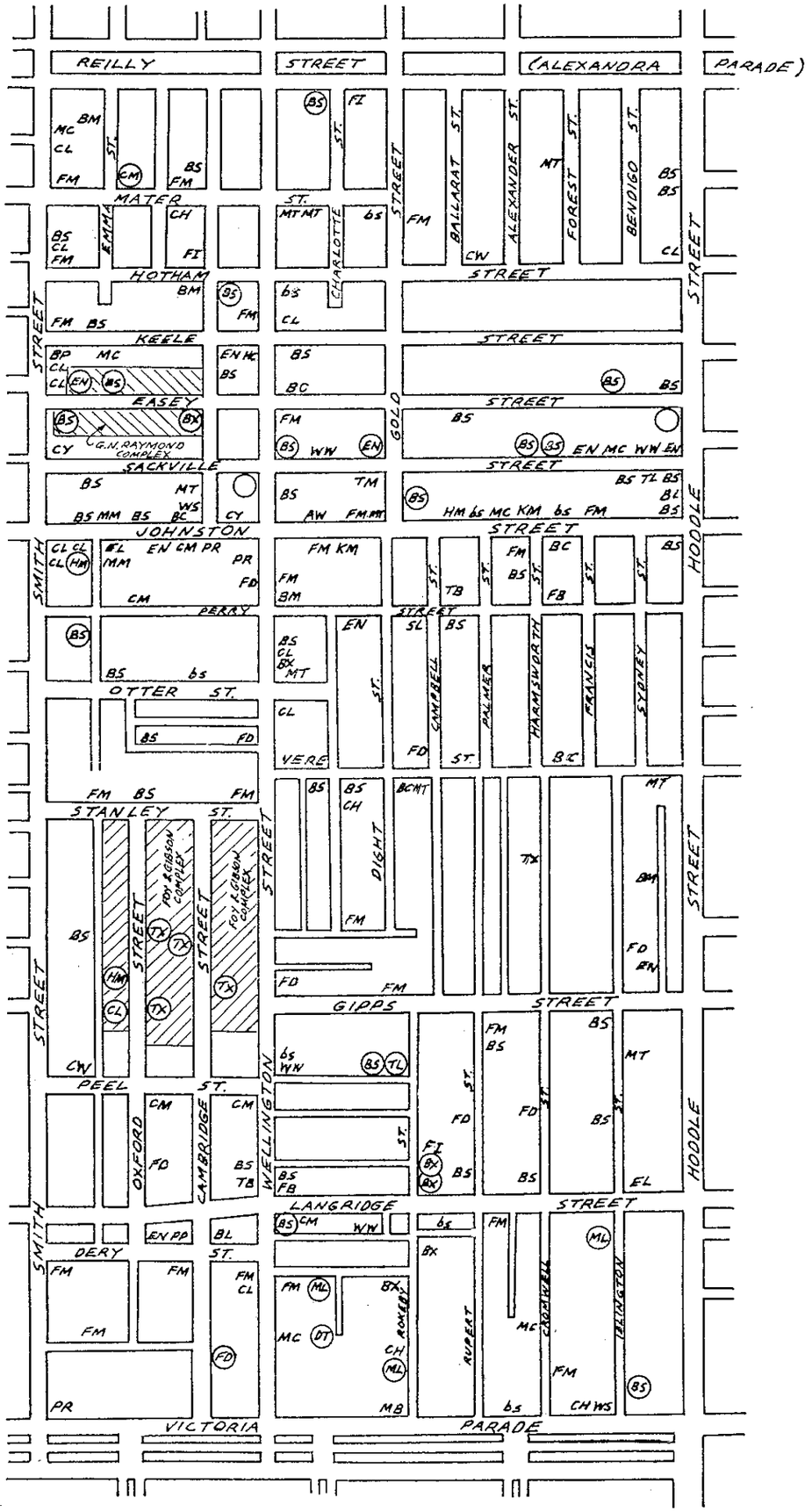
[1] Jones, pp.28-31.

[2] Jones, pp.29-31. The first steam engine was lost at sea when the ship carrying it out from England sunk, forcing extra expense and delay with Dight having to re-order the machinery.

[3] Barrett, pp.41, 87-90.



MAP 6.

COLLINGWOOD - CITY OF COLLINGWOOD

DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study

0 SCALE (METRES) 500

KEY TO FACTORY TYPES

AW	aerated water & cordial manufrs.
BC	bread & confectionery manufrs.
BL	blacksmiths
BM	misc. building materials
BP	boot polish manufrs.
BS	boot & shoe manufrs. & factories
bs	boot & shoes makers
BX	box & case manufrs.
CH	chemicals, ink & dye manufrs.
CL	clothing manufrs. & factories
CM	cabinet makers
CW	coachbuilders & wheelwrights
CY	cycle builders & cycle works
DT	distillers
EL	electric lighting works
EN	engineers & machinists
FB	brass foundries & founders
FD	food product manufrs.
FI	iron foundries & founders
FM	furniture manufacturers
HC	hat & cap manufrs, factories
HM	hosiery mills
KM	knitting mills
MB	motor body builders
ML	maltsters
MM	monumental masons' works
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PP	paper products manufrs.
PR	printers
SL	saddlers
TB	tobacco & cigarette manufrs.
TL	tanneries, curriers & leather dressers
TM	timber mills & joinery works
TX	textile mills (spinning, weaving, &c.)
WW	wood workers & turners, wicker workers

Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

MAP 7.

ABBOTSFORD - CITY OF COLLINGWOOD
DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study

0 SCALE (METRES) 500

N

KEY TO FACTORY TYPES

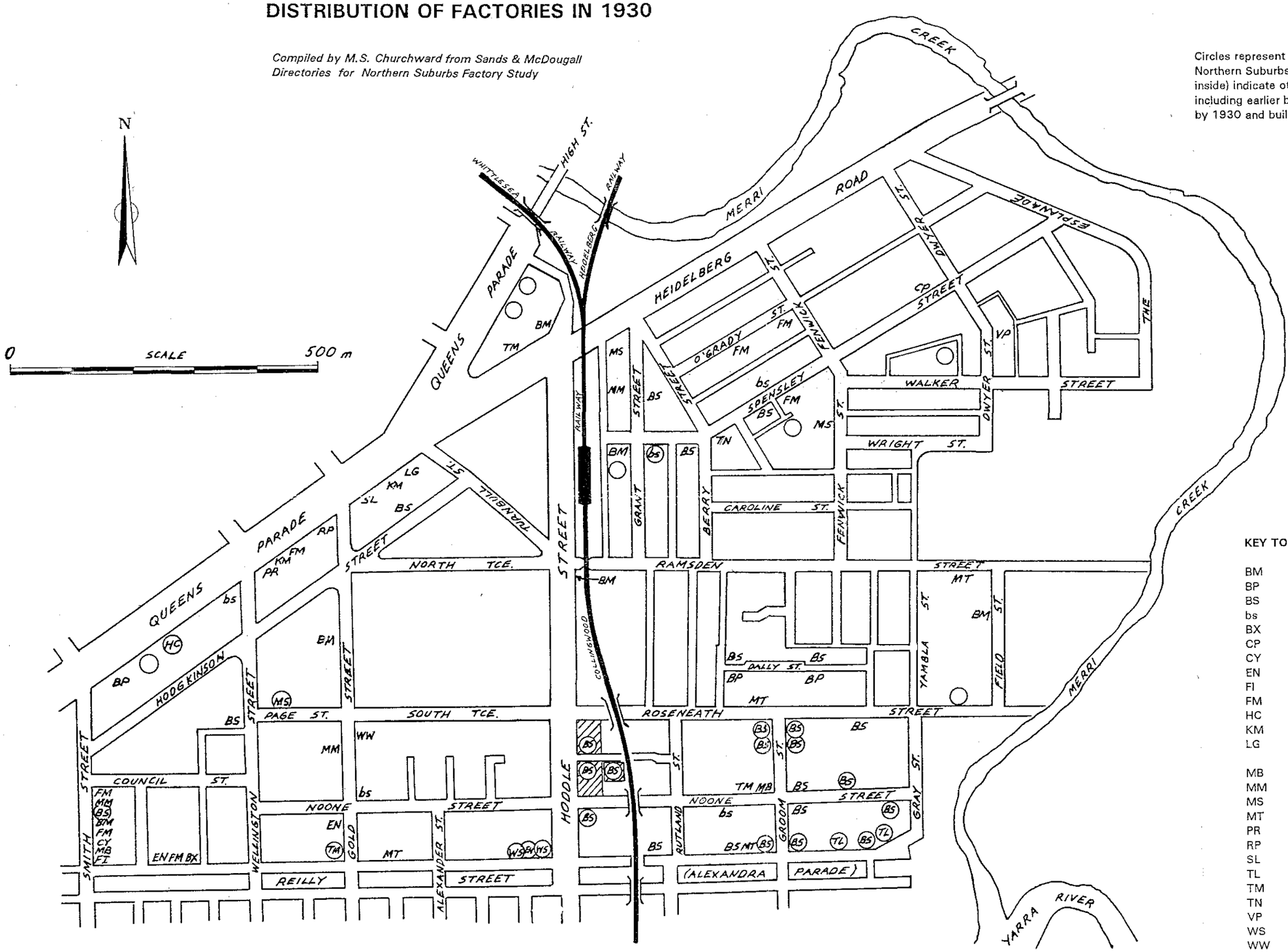
AW	aerated water & cordial manufrs.
BL	blacksmiths
BM	misc. building materials
BR	breweries
BS	boot & shoe manufrs. & factories
bs	boot & shoes makers
BX	box & case manufrs.
CH	chemicals, ink & dye manufrs.
CL	clothing manufrs. & factories
CP	coopers
CW	coachbuilders & wheelwrights
CY	cycle builders & cycle works
EN	engineers & machinists
FB	brass foundries & founders
FD	food product manufrs.
FI	iron foundries & founders
FL	flourmills & flour manufrs.
FM	furniture manufacturers
GP	glass product manufrs.
HC	hat & cap manufrs, factories
KM	knitting mills
LG	leather goods manufrs. (excl. boot & shoe makers)
MB	motor body builders
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PP	paper products manufrs.
PR	printers
RG	rubber goods manufrs.
SP	soap & candle manufrs., works
TL	tanneries, curriers & leather dressers
TM	timber mills & joinery works
TX	textile mills (spinning, weaving, &c.)
WS	wool scouring works

Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

MAP 8.

CLIFTON HILL - CITY OF COLLINGWOOD
DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study



Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

KEY TO FACTORY TYPES

BM	misc. building materials
BP	boot polish manufrs.
BS	boot & shoe manufrs. & factories
bs	boot & shoes makers
BX	box & case manufrs.
CP	coopers
CY	cycle builders & cycle works
EN	engineers & machinists
FI	iron foundries & founders
FM	furniture manufacturers
HC	hat & cap manufrs, factories
KM	knitting mills
LG	leather goods manufrs. (excl. boot & shoe makers)
MB	motor body builders
MM	monumental masons' works
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PR	printers
RP	rope & cordage works manufrs.
SL	saddlers
TL	tanneries, curriers & leather dressers
TM	timber mills & joinery works
TN	tinsmiths
VP	misc. vegetable product manufrs.
WS	wool scouring works
WW	wood workers & turners, wicker workers

status in 1855, and by 1857, its population had overtaken that of Fitzroy. Being outside the area of the Melbourne City Council's restrictive building regulations, Collingwood soon became popular as a working class suburb with high proportion of cheap timber housing. In addition, much of the low lying land to the east of Hoddle Street and in the vicinity of Reilly Street (now Alexandra Parade) was swampy and initially too poorly drained to be suitable for housing. In *The Inner Suburbs*, Barrett has argued that Collingwood's future destiny as a predominantly industrial suburb, was largely determined by the factors at work during these early years.[1]

By 1855, new manufacturers in Collingwood were taking advantage of the strong post-gold rush demand for building materials, domestic goods and food products, and these sectors of manufacturing were to remain the most important in Collingwood until after 1870. By the end of the 1850s, there were at least four breweries in Collingwood, including the Bedford Street Brewery, the Yorkshire Brewery in Wellington Street (established by John Wood owner of the Yorkshire Hotel), Coppin's Brewery on the banks of the Yarra, and the Shamrock Brewery (established nearby by Thomas Graham) whilst Thomas Aitken had established the large Victoria Brewery on the south side of Victoria Parade, just outside the municipal boundary.[2]

In 1852, F. Wallis began manufacturing kitchen ranges and colonial ovens in a premises on Wellington Street and in 1855, Rae Dickson & Co. bought the former glass works in Rokeby Street and converted it into a stearine candle factory.[3] The Phoenix Coach Factory diversified into producing general ironwork and became Collingwood's most successful factory of the 1850s, employing up to 110 men and producing ironwork for the first Studley Park bridge as well as wheelbarrows, dobbins and gate crossings for contractors building the Geelong-Ballarat Railway.[4]

The most significant manufacturing developments in Collingwood during the 1860s, were the establishment of the first distilleries and of Collingwood's first boot factory and tannery. Following the passing of the *Distilleries Act of 1861*, which saw a reduction in the duty imposed on colonially manufactured spirits compared with imported spirits, Thomas Aitken, proprietor of the Victoria Brewery in Victoria Parade, decided to establish Victoria's first legal distillery in Northumberland Street, Collingwood. He built a five-storied brick tower (which still stands) to house the stills, and spent upwards of £1,000 on copperwork fitting out the establishment. By 1868, Aitken was producing some 9,000 gallons of whisky and 13,000 gallons of geneva a month, although the three stills at the works had a combined capacity of 1,000 gallons per day. Cold water for the condensers was drawn from the new reticulated supply from the Yan Yean Reservoir. The success of Aitken's enterprise encouraged Thomas Miles to establish Collingwood's second distillery, in Sackville Street, by 1870.[5]

In 1864, Hugh Thompson, took over the former glassworks in Rokeby Street and established a combined tannery and steam-powered boot factory that was the first factory of its type in Victoria. By 1868, the tannery was employing some 20 men, with 36 tan pits and a large currying room, whilst the boot factory section next door, employed up to 180 men, women and boys, turning out 'every description of boots, shoes, slippers, & c.'[6]

By 1870, the *Statistical Register* recorded 43 factories in Collingwood, the greatest concentration of any municipality in Melbourne except for the City of Melbourne itself *(table 6)*.[7] The *Sands & McDougall Directory* for 1870 provides a similar picture, although it is difficult to obtain exact figures from the directory because of the difficulty of distinguishing factory-based manufacturing

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[1] B. Barrett, *The Inner Suburbs: The evolution of an industrial area*, Melbourne University Press 1979; By 1851, for example, 80% of houses in Collinwood were built of timber compared to 63% in Fitzroy.

[2] Barrett, pp.94-98

[3] Sutherland, p.622; Barrett, pp.41 & 90.

[4] Sutherland, pp.605-6.

[5] McLeod, *Melbourne Factories*, 1868, pp.34-5; T. Aitken, "Report from the Select Committee Upon Manufactures", minutes if evidence paras.233-4, in *Victorian Parliamentary Papers*, 1864-5, vol.1, No.D6; *Sands & McDougall Directories*.

[6] McLeod, *Melbourne Factories*, 1868, p.35-6.

[7] Outside Melbourne, only the much larger municipalities of Ballarat and Geelong had more factories, *Statistical Register of Victoria*, 1870, Production.

businesses from manufacturing employees and businesses that were either 'backyard' based or combined manufacturing with retailing. A careful examination of the directory suggests that there were as many as 54 factories in Collingwood by 1870. Some 239 manufacturing trades people are also listed in the directory, a considerable proportion of whom would have been self-employed. What the directory does help to show more clearly than the Statistical Register, is the extent to which each manufacturing sector had contributed to factory development in Collingwood by this time. The sectors which had undergone the strongest growth were: food products, breweries & distilleries, coach building & metal products, the noxious trades, and miscellaneous vegetable products *(table 9)*.

Collingwood also had a relatively large number of steam powered factories in 1870 (56.5% of all factories recorded) *(table 6)*. It is not entirely clear why Collingwood should have gained more early steam-powered factories than other suburbs, but the strength of industries such as brewing, coach building and engineering was certainly an important factor.[1] Another important reason may have been the availability of firewood close at hand. Roberts & Ferguson for example are reputed to have cut firewood for their steam-powered coach factory, from their two-acre freehold site on Hoddle Street and collected rainwater from their roof to feed the boiler.[2]

Most of Collingwood's manufacturing development up to 1870 was concentrated around the south end of the municipality, along Victoria Parade and Simpson's Road (now Victoria Street), on the slope and flats between Smith Street and Hoddle Street, or along banks of the Yarra River. By 1870, the small strip of land between the river and Simpson's Road and bounded by Albert Street to the west, was the centre of Collingwood's noxious trades. The noxious trades in the district were mainly made up of tanneries, fellmongers and wool-scourers, as the even more polluting boiling-down and manure works were mostly confined to the lower Yarra, Maribyrnong River and Flemington areas. Much of the early industrial activity in this area appears to have spilled over from Richmond further downstream, and was quite different in character to the rest of Collingwood at this time. A breakdown of these trades is shown in Table 7. In 1852, Peter Nettleton established a wool washing works on the banks of the river close to the Simpson's Road bridge. His works began with small jetties and timber structures extending out into the river, but he subsequently built a bluestone cottage and a substantial scouring works along with a warehouse complex higher up the bank near the road. By 1870, Nettleton was processing around 3,000 sheep skins a week.[3]

By the early 1860s, a small soap factory had been established near Nettleton's works. In 1863, the manager, Henry Walker, purchased this factory from and set about expanding the business, purchasing an adjacent block where he opened a stearine candle factory, and probably relocating some of his Williamstown operation here following its closure. By 1868, Walker had bought another existing soap and candle works in West Melbourne, which he operated in conjunction with his two Collingwood factories for many years under the title Hobson's Bay Soap & Candle Works (the name of the original Williamstown works). By 1875, Henry Walker was employing 15 men and turning out 55 tons of soap and six tons of candles a month. Walker became a prominent local citizen, serving on the local council for over 15 years and was Mayor five times. By 1870, there were a number of other fellmongers, wool-scourers and a tanner listed in Grosvenor Street, Thomson Street and Church Street, and there were also a number of small brickyards still active in the area.[4]

When Donald McLeod published a pamphlet in 1868, surveying 36 of the most 'active and thriving' factories in Melbourne he included descriptions of four works in Collingwood, namely, the Hobson's Bay Soap & Candle Works and the Victorian Patent-Axle Manufactory in Simpsons Road, the Collingwood Steam Saw Mills on Victoria Parade, and Hugh Thomson's boot factory & tannery in Rokeby Street.[5]

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[1] Collingwood had the second highest number of steam-powered factories in the metropolitan area, and fifth highest in Victoria, after Melbourne, Ballarat, Sandhurst and Geelong. *Stastistical Register of Victoria*, 1870, Production.

[2] Sutherland, pp.605-6

[3] John Lack, Worst Smellbourne: Melbourne's Noxious Trades, in *The Outcasts of Melbourne*. p.187; Barrett, p.89.

[4] *Sands & McDougall Melbourne & Suburban Directories*

[5] D. McLeod, *Melbourne Factories*, Walker May & Co., Melbourne. 1868.

Table 6: Manufacturing in Collingwood 1870-1976.
compiled from The Statistical Register of Victoria, 1870-1910; Victorian Year Book, 1935-1950 & Manufacturing in Melbourne, Report of the Technical Advisory Committee, M.M.B.W., 1979, p.42.

Municipality	Year	Number of Manuf.ing Works Recorded	Number of Steam Powered Works	Number of Gas Engine Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees[δ]	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £
Collingwood Borough	1870-71	43	20	-	150*	646	33,490	38,605
Collingwood Town	1875-76	58	23	-	195*	876	43,635	47,624
Collingwood City	1880-81	75[Φ]	25	-	217	1,298	45,687	79,490
Collingwood City	1885-86	95[∞]	19	10	236	2,471	57,820	85,413
Collingwood City	1890-91	128	44	23	1,350	3,485	198,505	213,467
Collingwood City	1896	90	34	30	1,503	3,925	150,090	167,930
Collingwood City	1900	111	40	40	1,898	5,342	195,507	223,910
Collingwood City	1910	199				7,797		
Collingwood City	1935-36	371				16,935	1,891,720	2,291,823[#]
Collingwood City	1940-41	394				19,160	2,170,952	2,664,338[#]
Collingwood City	1945-46	443				18,398	2,284,352	2,905,564[#]
Collingwood City	1950-51	539				20,382	3,842,661	5,031,817[#]
Collingwood City	1961					19,576		
Collingwood City	1971					17,393		
Collingwood City	1976					12,406		

NOTES: * Estimate only - exact total not available.
[Φ] All figures for this year exclude one soap & candle works & one tobacco manufactory in Collingwood for which separate returns were not published.
[∞] All figures for this year exclude one soap & candle works in Collingwood for which separate returns were not published.
[#] Includes value of both land & buildings.
[δ] All employment figures exclude outworkers.

George Dodson's Victoria Patent Axle Manufactory in Simpsons Road (now Victoria Street) was another of Collingwood's unusual and innovative industries, both in its products and its set-up. The factory consisted of a single workshop, measuring 50 ft. x 40 ft., that was equipped with two blacksmiths' forges, several workbenches and four lathes, three of which had been made on the premises. What is particularly remarkable is that the lathes were at first driven by a small water turbine powered on the mains pressure from the Yan Yean supply, although by 1868, this system had been replaced by a small 5 horsepower condensing beam engine, possibly to overcome the limited power output of the turbine. Further west on Victoria Parade, C. & J. Smith's Collingwood Sawmills had two steam engines, of 20 and 25 horsepower, driving a vast array of circular saws, lathes, moulding machines and other wood-working machinery. Using imported timbers, such as pine, cedar and oregon this firm produced a variety of woodwork for the building trade, including doors, window frames & sashes, mantelpieces and architraves.[1]

Another unusual factory established in Collingwood by 1870, was the antimony & sulphur smelting works in Gold Street which may have been connected with the development of manufacturing chemists (both elements having medicinal uses from antiquity) or, more probably, in manufacture of additives for casting of bronze alloys in the nearby foundries.[2]

Many of Collingwood's earliest manufacturers did not survive for more than 10 years, but vacant factory buildings only seem to have encouraged other entrepreneurs with new ideas. Thus, Dight's flour mill, which closed in the early 1860s, was leased by Thomas Kenny in 1864-7 to manufacture paper and was later re-used during the 1870s as a 'Safety Blasting Powder' factory.[3] Likewise, the short-lived pioneering glass bottle works in Rokeby Street subsequently became a candle factory and then Victoria's first steam-powered boot factory, but its original function was not forgotten because for many years afterwards it was affectionately referred to as 'The Glasshouse' and the Glasshouse Hotel still stands nearby.[4] Part of a bluestone wall from an early building and two different aged brick sections from the later boot factory survive on the site today, surrounding a parking lot.

The 1870s, saw further strong growth in the number of factories in Collingwood, with the Statistical Register recording 75 factories in the municipality by 1880, although part of this increase was due to a broadening in the definition of a factory adopted by the Government Statistician's Office (see discussion above).[5] The fact that the number of steam powered factories recorded declined slightly during these years also suggests that the official statistics probably magnify the actual trend. Collingwood seems to have lost its early lead in total number of factories to neighbouring Fitzroy during the 1870s, although its total manufacturing employment and investment in factory plant & buildings was still considerably higher than that in Fitzroy. On average, Collingwood's factories were significantly larger than those in Fitzroy *(compare tables 2 & 6).*

The main sector to show significant growth in Collingwood during the 1870s was the noxious industries, and in particular the tanneries. Although Collingwood had been home to noxious industries along the Yarra, since the 1850s, most of the early activity was restricted to wool washing, fellmongering and soap & candle manufacture. The only major tannery operating in Collingwood prior to 1870, was the one attached to Hugh Thomson's boot factory in Rokeby Street. During the 1870s, this situation changed markedly. Between 1876 and 1880, the number of tanneries, fell fellmongers & wool-scouring works in Collingwood doubled from four to eight, largely due to the establishment of new tanneries in Abbotsford near the river and along the Reilly Street (Alexandra Parade) drain. There was also a 50% increase, during these years, in the number of tanneries, fellmongering & wool-scouring works using steam power and substantial increases in the number of employees, investment in plant & buildings and the output of tanned skins & hides. *(table 7).*

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[1] McLeod, *Melbourne Factories*, 1868, pp.11 & 17-18.

[2] *Sands & McDougall Melbourne & Suburban Directories*

[3] Jones, p.32; Barrett, p.156

[4] Barrett, pp.41, 87-90; McLeod (1868), pp.35-6

[5] From 1874, for example, coach works using other than steam-power were included for the first time, which would probably have added about another 6 coach works to the list of factories in Collingwood.

Alongside the tanneries in importance during the 1870s, was the development of Collingwood's hat making industry which moved away from a small shop-based activity into a factory-based industry. In 1874, James Hobson Turner, a local tanner and Collingwood Town councillor, established Australia's first steam powered hat factory, the Denton Hat Mills, in Nicholson Street, Abbotsford. After Thomas Shelmerdine took over the works in 1876, the business grew rapidly, increasing its original workforce from 12 to 70. By the time Shelmerdine's lease expired in 1883, 120 were employed and the Denton Hat Mills had become one of Collingwood's largest factories. The imposing polychrome brick buildings that survive in Nicholson Street, reflect not only the commercial prominence of the Denton Hat Mills, but also its growth throughout the 1870s and 1880s, with a number of successive additions being apparent in the facade.[1] Subsequently, Schelmerdine established his own hat factory in Treerry Crescent where he installed an imported gas engine to drive his machinery, which is said to have been the first engine of its type in Victoria.

There was no increase in the number of breweries in Collingwood during the 1870s *(table 8)*, but significant additions were made to brewery buildings and equipment. The surviving six-storey brew tower of the Yorkshire brewery, south of Wellington Street was built in 1877 complete with an hydraulic lift (the very latest in materials handling technology) and an adjacent 205 feet high brick chimney that has since been demolished. The scale of this development is indicative of a major expansion in brewery investment throughout Melbourne, which began in the late 1870s and continued throughout the boom decade of the 1880s. Collingwood's drinks industry also diversified during the 1870s, with T. Wilson establishing the Town Hall Aerated Water & Cordial Factory in Islington Street, in 1872.[2]

Robert Hall began in a small way as a stairbuilder and then switched to woolscouring at a site in Reilly St. in the 1860s, before turning to engineering as the need arose to mechanise the woolscouring process in the face of labour shortages and increased demand. Hall's sons took over the firm and produced Australia's first automated wool scouring equipment in the 1870s. Nearby, and also taking advantage of the noxious trades zone in Reilly St., W. Coop erected a shot tower and lead smelting works.[3]

As was happening in Fitzroy at this time, the 1870s, saw the first major transition of footwear manufacturing in Collingwood away from a traditional shop and backyard based industry towards a factory-based industry. Throughout the 1870s, Hugh Thompson's boot factory was joined by at least 10 new boot & shoe factories although not all lasted more than a few years. Of those that did survive beyond 1880, the most significant names William Peat, William Lang and Samuel Fabian. Although the term 'boot factory' was generally used to describe a business that concentrated on making footwear for the wholesale trade, it is important to realise that at this stage many of these establishments were still not mechanised. Even in Hugh Thompson's factory, where steam-power had been installed in 1864, most of the tasks involved in assembling and closing the shoes were still done by hand operators seated on stools at long wooden benches. Machine-power was confined to the simpler tasks such as rolling leather, stamping out and pricking soles and some sewing of uppers.[4]

The 1880s was very much a boom decade for manufacturing in Collingwood. Collingwood regained its former lead in manufacturing from Fitzroy, with the total number of factories recorded in the municipality growing by 68% *(table 6)*. Much of this growth was due to a continuing trend which saw the footwear and clothing trades moving from shops and home-based manufacturing into factories, but there was also a major diversification in manufacturing with many new industries being established in Collingwood for the first time. W.H. Stevens opened the Victoria Parade Carriage Factory in 1881 and, by 1888, was employing 15 to 20 hands in a two-storeyed brick building, whilst Patrick Davine established a smaller coach factory in Budd Street where he had 5 men employed by 1888.

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[1] Sutherland (1888), p.598; Barrett (1979), p.158.

[2] Barrett, p.95; Sutherland, p.684. This firm may have been associated with George Wilson & Co. of Fitzroy, which was established in 1853 and has been discussed in the previous section.

[3] Defunct Business File VPRS 933 No.836.

[4] N. Georgiou, *Some Features of the Collingwood Boot & Shoe Industry ...*,B.A.Hons thesis, University of Melbourne, 1969; McLeod, *Melbourne Factories*, 1868, pp.35-6.

Table 7: Tanneries, Fellmongers & Wool-scouring Works in Collingwood 1876-1900.
compiled from The Statistical Register of Victoria, 1876-1900.

Year	Total Number of Works	Number of Steam Powered Works	Combined Motive Power of Engines h.p.	Total Number of Employees	Total Number of Tan Pits	Total Value of Plant & Machinery £	Total Value of Buildings £	Number of Hides Tanned per year	Number of Skins Tanned per year	Number of Skins Stripped per year	Wool Washed per year /1,000 lbs
1876-77#	4	4	41	121	297	5,450	8,750	34,600	10,600	n.a.	n.a.
1880-81	8	6	60	234	131	9,950	29,850	35,200	162,568	171,865	2,150
1882-83	6	6	73	163	160	12,890	22,800	32,000	46,000	174,400	2,338
1890-91	8	7	106	135	283	12,870	28,700	26,960	26,370	-	1,226
1896	8	8	146*	197*	324*	11,600*	23,200*	24,710*	128,570*	170,560*	2,221*
1900	6	6	128*	187*	201*	9,790*	14,950*	27,634*	178,653*	170,000*	1,187*

NOTES: # Figures for this year relate to tanneries only.
* These totals include details for one tannery within the City of Melbourne also.

Kitchingham & Co. established a 'flexible varnish' factory in Wellington Street, and Henry Bradley & Son opened a clay pipe factory to make smoking pipes. With the increased use of town gas reticulated from the Fitzroy gasworks, stovemakers, Wallis Bros & Co. diversified into the manufacture of gas stoves, whilst Lyster & Cooke established a new foundry in Smith St. to make cast iron furniture, hall stands and fenders.[1]

After a poor decade during the 1870s, with declining production, the Collingwood brewing industry experienced some major structural changes during the 1880s. In fact these changes were part of more general rationalisation of the whole of Melbourne's brewing industry that was to continue until the early 1900s. The *Statistical Registers* recorded a drop in the number of breweries in Collingwood from five to four between 1881 and 1891, but more than one of the existing firms obviously closed down, because three new breweries opened in the municipality during these years.[2]

By 1880, Boyd & Head of the Crown Brewery in Fitzroy had bought the Shamrock Brewery in Simpson's Road, and as a result they closed the Fitzroy plant and moved all their operations to Abbotsford. After Head retired in March 1887, Boyd floated the business as a public limited liability company in order to provide capital for additional expansion. Following Boyd's lead, the proprietors of the Yorkshire and Victoria Breweries also floated their operations as public companies, as did the owners of many of Melbourne's other leading breweries during the next two years.[3]

Table 8: Breweries in Collingwood 1870-1900.
compiled from The Statistical Register of Victoria, 1870-1900.

Year	Total Number of Works	Number of Steam Powered Works	Combined Motive Power of Engines h.p.	Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings £	Quantity of Beer Produced 1,000 gal/yr.
1870-71	5	n.a.	n.a.	79	12,000	9,850	1,138
1875-76	5	n.a.	n.a.	91	12,600	13,100	1,704
1880-81	5	4	42	65	8,780	14,530	763
1885-86	3	2	37	45	8,700	23,000	420
1890-91	4	3	134	124	33,682	64,700	1,259
1896	2	2	313	188	44,930	42,190	982
1900	2	2	365	193	64,460#	67,010	1,712

NOTES: # This figure includes the value of both buildings & improvements.

[1] Sutherland, vol 2, pp.598, 602, 713, 610 & 622.
[2] In addition, some of the smaller breweries, such as Dominck Daly's and Henry Rowland's appear not to have been included in the *Statistical Register* figures.
[3] *Sands & McDougall Directories*; Barrett, *The Inner Suburbs*, p.160; *History of C.U.B.*, undated typescript held Carringbush Library, Collingwood.

Perhaps the best-known of all Australian beer brands, 'Fosters Lager', was introduced in 1888 by two Americans, W.M.& R. Foster, who arrived from New York, to establish the Foster Lager Beer Brewing Co. in Rokeby Street, Collingwood. They were responsible for introducing a great many innovations into the Victorian brewing industry, including lager beer (a lighter bitter tasting European beer fermented at cooler temperatures than traditional ales)[1], a Corliss steam engine driven refrigerating plant and new brewing technology that did away with the need to use a traditional brewing tower. They concentrated largely on bottled beer, rather than the usual kegs, and as a consequence were able to gain a virtual monopoly over bottled beer sales in Melbourne by 1895.[2]

New manufacturers of non-alcoholic beverages also emerged in Collingwood's during the 1880s. By 1888, Henry Rowland had established the Victorian Dandelion Ale Factory in Duke Street, where he brewed non-alcoholic dandelion ale and hop champagne. Meanwhile, Jacob Schweppe & Co. (later Schweppes Ltd.) erected an elegant two-storeyed brick factory for aerated waters in Lithgow Street, Abbotsford, and the cordial manufacturers, Dyason & Son, moved from a small factory in Carlton to a larger 33 ft. x 190 ft. premises in Cambridge Street, Collingwood, where they produced 'Prescott's Parramatta lime juice', lime juice cordial, raspberry vinegar, table vinegar and syrups. Both of the latter buildings survive today.[3]

Factory based boot & shoe manufacturing also continued to expand in Collingwood during the 1880s, although perhaps not to the extent that it did in Fitzroy. Georgiou's analysis of the *Collingwood Rate books* revealed that between 1880 and 1891, the number of boot & shoe factories operating in Collingwood increased from 5 to 13, whilst the number of bootmakers' shops only increased from 39 to 50. Perhaps more surprisingly, Georgiou found that the number of bootmakers or shoemakers recorded in houses jumped from 252 to 465 over the same period, which he concluded was due to an increase in 'backyard' manufacturing.[4] It seems more likely, however, that what the rate books were recording was the increase in boot factory employees as factory-based manufacturing became more widespread and factories grew in size (refer to comments on this in the *Statistical Appendix*). In November 1884, a dispute broke out between the Victorian Operative Bootmakers Union and boot factory owners over the issue of minimum weekly wages and the widespread use of outworkers in the industry. Virtually the whole of the Collingwood boot trade was closed down by a 13 week strike, the result of which saw a victory for the workers with an agreement being reached on working hours and wages. In the longer term this dispute probably helped to accelerate the existing trend towards more factory-based manufacturing of footwear by removing many of the main incentives for employing outworkers.[5]

The only surviving boot factory dating from the 1880s identified in Collingwood is Yates Boot Factory at 10 Page Street, which is now better known as 'The Organ Factory' after its early 20th century function. William Yates had emigrated to Victoria in 1875, and first established own boot & shoe manufacturing business in Wellington Street in 1878, before moving to Page Street, Clifton Hill in 1884.[6]

As was occurring in Fitzroy at this time, the rapid expansion of manufacturing during the 1880s began to encourage the development of important links between manufacturers and some of Collingwood's engineering works, which in turn were developing an expertise in the manufacture or repair particular types of machinery. Machar & Teal established a small engineering works in Simpson's Road (now Victoria Street) in 1881 and by 1888 were employing 15 men. They held the Victorian agency for Fawcett patent brickmaking machinery and built a number of machines for brickworks in Brunswick, Preston, Northcote and Ringwood. David Watson established the

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[1] Cohn Brothers, at Bendigo, were possibly the first brewers in Victoria to experiment with this type of beer, introducing a lager style product in 1882. In 1885, two German emigrants, Rennie & Friedrich, opened the Ganbinus Brewery in Collingwood, which was Victoria's first brewery devoted solely to the production of lager beers, but their enterprise folded after a few months.

[2] *History of C.U.B.*, pp.20-22; *Australian Brewers Journal*, 20.02.1892 & 20.10.1888.

[3] *Sands & McDougall Directories*; Sutherland, 1888, vol.2, pp.669 & 679.

[4] N. Georgiou, *Some Features of the Collingwood Boot & Shoe Industry*, pp.24-27 & table 1.

[5] "Local boot trade was all the rage", *The Melbourne Times*, 15.05.1985, p.12.

[6] Sutherland, 1888, vol.2, p.626; *Collingwood Conservation Study.*

Abbotsford Boiler Works in Johnston Street in 1887 where he repaired and manufactured boilers for local factories as well as producing iron tanks, girders and bridgework.[1]

In 1883, E.T.Brown & R.Blythe moved their Agenora Engine Works from Berkeley Street Carlton, to a new premises at the corner of Reeves and Reilly Streets in Clifton Hill. From here they formed a close association with the boot trade repairing small steam and gas engines and producing boot finishing machines, presses and rollers for local boot manufacturers. They also produced brickmaking machinery, stone-sawing machinery and some of the first torpedo gear for the Victorian Government. Nearby, on Reilly Street also, James Reid established the Clifton Wheel Company in 1885, specialising in the manufacture of wheels, tubs, spokes and bodies for the coach-building trade. By 1902, he was the largest specialist supplier of woodwork for coach-building in Australia.[2]

Perhaps best known of all Collingwood's specialist engineering works is that of G.N.Raymond. Raymond had trained as a bootmaker in Boston, the home of the American boot industry, before sailing for Australia during the gold rushes. He initially established himself as a bootmaker in a small shop in Smith Street, Collingwood, later moving to Dight Street and then Reilly Street, Clifton Hill. During the early 1880s he began fashioning his own wooden and iron lasts because of the difficulty of obtaining lasts that conformed to his ideas of fit and shape. He soon found that there was such a demand for his lasts that he abandoned shoemaking altogether and concentrated on producing lasts for other local shoe manufacturers. By 1895, Raymond had moved to a larger factory in Easey Street where he produced a wide range of bootmakers' equipment including rollers, presses, lasting jacks, heel breasters, sole knives, heel knives and heel rounders, as well as wooden & iron lasts in hundreds of different sizes. During the early 20th century G.N. Raymond's works continued to expand until they eventually covered almost the whole block down to Budd Street and back to Kelle Street. The firm also diversified into the manufacture of boxes and the supply of footwear components, such as heels and rivets, as well as bootmaking equipment, and this has helped to ensure their survival down to the current day, long after many of the other local boot factories they once supplied have closed.[3]

The 1890s depression appears to have hit Collingwood much harder than Fitzroy, with a net decline of 17 in the number of factories operating in the municipality during the decade. The importance of the brewing and engineering industries, which were particularly hard hit by the recession, seem to have been one of the major causes of this decline. The value of investment in manufacturing, plant and buildings in Collingwood remained virtually stagnant throughout the 1890s. There were so many vacant factories in Collingwood by 1895 that even once the recovery started, it was several years before there was any significant factory-building in the municipality.

During the first decade of the 20th century Collingwood, like Fitzroy, experienced a phenomenal growth in manufacturing, with the total number of factories recorded by the *Statistical Register* jumping by 79.3%. This rate of increase was not quite as great as that in neighbouring Fitzroy, but Collingwood seems to have attracted more large scale developments, which kept its overall manufacturing workforce well above that in Fitzroy *(compare tables 2 & 6).*

According to the *Sands & McDougall Directories,* Collingwood proper still accounted for the majority of all factories in the municipality of Collingwood in 1900. Up until this time, most of the manufacturing development that had occurred in Abbotsford and Clifton Hill had been confined to quite specific areas. In Clifton Hill a small group of noxious industries and engineering works had developed along the north side of what is now Alexandra Parade, following the construction of the Reilly Street drain.

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[1] Sutherland, 1888, vol.2, pp.611 & 622; Churchward & Milner, *The Principal Engineering Establishments in Victoria: 1842- 1945*, 1988, pp.4.145-7 & 4.215-6.

[2] Sutherland, 1888, vol.2, p.611; Smith, 1903, vol.1, pp.582-3 & 562-3; Churchward & Milner, *Victorian Steam Engine Builders & Importers*, pp.56-7.

[3] Georgiou, *Some Features of the Collingwood Boot & Shoe Industry*, 1969, pp.13 & 31; *Australian Leather Journal*, 15.12.1902, p.535 & 15.05.1903, p.18.

Table 9: A Comparison of Factory & Non-Factory Manufacturing in Collingwood 1870, 1900 & 1930.
compiled from the Sands & McDougall Directories.

COLLINGWOOD - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930		
	1870	1900	1930	COLL'WD	ABBOTS.	CLIF.H
FOOD, DRINKS & TOBACCO						
maltsters	-	1	4	3	1	-
brewers & breweries	6	4	1	-	1	-
distillers	2	2	-	-	-	-
ginger beer manufrs.	2	-	-	-	-	-
cordial & aerated water manufrs.	-	6	2	1	1	-
vinegar, sauce & pickle manufrs.	-	1	5	3	2	-
fruit & vegie. presvrs.& pres. factories	-	1	2	2	-	-
flourmillers & manufrs.	1	1	2	-	2	-
biscuit, crumpet & cake manufrs.	-	-	4	2	2	-
manufg. confectioners (wholesale)	1	3	5	2	3	-
cocoa mills	-	-	1	-	1	-
machine bread bakers	-	1	2	1	1	-
yeast manufrs.	-	-	2	-	2	-
icecream manufrs.	-	-	1	1	-	-
other food product manufrs.	-	-	4	3	1	-
cigar & cigarette manufrs.	2	2	1	1	-	-
subtotals	*14*	*22*	*36*	*19*	*17*	-
CLOTHING & TEXTILES						
straw hat manufrs. & works	-	3	-	-	-	-
hat factories	-	3	3	1	1	1
hat & millinery manufrs.	2	2	2	1	1	-
umbrella manufrs.	-	1	-	-	-	-
underclothing manufrs.	-	3	-	-	-	-
shirt factories	-	2	1	1	-	-
shirt manufrs.	-	-	3	2	1	-
mantle manufrs.	-	-	2	1	1	-
juvenile clothing manufrs.	-	1	1	1	-	-
clothing manufrs. (unspecified)	1	5	7	6	1	-
clothing factories	-	3	3	2	1	-
bedding manufrs.	-	-	2	-	1	1
hosiery & stocking manufrs.	-	1	2	2	-	-
textile mills	-	-	8	4	4	-
tweed manufrs.	-	-	1	-	1	-
knitted good manufrs.	-	-	5	1	2	2
knitting works	-	1	1	1	-	-
mungo manufrs.	-	-	1	-	1	-
costume manufrs.	-	-	1	-	1	-
athletic req. manufrs.	-	1	1	1	-	-
subtotals	*3*	*26*	*44*	*24*	*16*	*4*
	1870	1900	1930	COLL'WD	ABBOTS.	CLIF.H
FOOTWEAR						
slipper manufrs.	-	1	3	1	1	1
shoe manufrs.	-	-	32	14	6	12
boot & shoe manufrs.	-	22	49	20	18	11
boot & shoe factories	1	9	2	1	1	-
court shoe manufr.	-	1	-	-	-	-
pump shoe makers	-	1	-	-	-	-
boot upper manufrs.	-	-	2	2	-	-
boot heel manufrs.	-	-	5	1	2	2
boot lace manufrs.	-	-	1	1	-	-
subtotals	*1*	*34*	*94*	*40*	*28*	*26*
ENGINEERING & METAL PRODUCTS						
agricultural implement manufrs.	-	1	-	-	-	-
coachbuilders	7	16	3	2	1	-
coach factory	-	1	-	-	-	-
motor body builders & works	-	-	8	2	3	3
spoke, hub & carriage woodwork manufrs.	-	1	-	-	-	-
saddletree factory	1	-	-	-	-	-
engineers	4	9	18	5	9	4
toolmakers	-	-	1	-	1	-
millwright & engineer	1	-	-	-	-	-
patternmakers	-	-	2	-	2	-
oven & range manufrs.	1	2	-	-	-	-
iron foundries	-	1	2	2	-	-
iron founders	-	2	5	1	3	1
brass founders	-	2	4	2	-	2
brass finishers	-	1	-	-	-	-
steel works	-	-	1	-	1	-
boilerworks	-	1	-	-	-	-
bakers' utensils manufrs.	-	1	1	-	1	-
boot machinery manufrs.	-	-	2	1	1	-
machinery manufrs. (unspec.)	-	-	1	-	1	-
hardware manufrs.	-	-	1	1	-	-
last, knife & die makers	-	1	5	4	1	-
saw makers	1	-	-	-	-	-
saw & cutlery works	-	-	1	1	-	-
manufg. jewellers	-	1	-	-	-	-
steel tubing manufrs.	-	-	1	-	-	1
nail manufrs.	-	-	1	-	-	1
wire fence & gate manufrs.	-	-	1	-	1	-
canister & tin manufrs.	-	-	2	-	2	-
galvaniser	-	1	-	-	-	-
electroplaters	-	-	2	-	2	-
electroplate manufrs.	-	-	1	-	1	-

COLLINGWOOD - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930		
	1870	1900	1930	COLL'WD	ABBOTS.	CLI
FOOD, DRINKS & TOBACCO						
bakers	20	23	12	8	3	
confectioners	6	51	119	60	38	
pastrycooks	1	5	11	8	2	
cigar makers	1	-	-	-	-	
subtotals	*28*	*79*	*142*	*76*	*43*	
CLOTHING & TEXTILES						
straw hat maker	1	1	-	-	-	
bonnet maker	1	-	-	-	-	
hatters	3	1	1	1	-	
milliners	3	2	10	9	1	
umbrella makers & menders	2	3	1	1	-	
tailors	16	22	15	10	4	
tailor & dyer	-	1	-	-	-	
dressmakers	14	26	20	15	4	
costumiers	-	9	5	4	-	
tie & bow maker	-	1	-	-	-	
underclothing makers	-	1	-	-	-	
mantle & shirt maker	1	-	-	-	-	
whiteworker	-	-	1	1	-	
machine sewers	3	-	-	-	-	
weavers	-	-	1	1	-	
muslin stamper	1	-	-	-	-	
fur & fabric dyers	-	4	2	1	1	
furriers	1	-	1	1	-	
subtotals	*46*	*71*	*57*	*44*	*10*	*3*
	1870	1900	1930	COLL'WD	ABBOTS.	CL
FOOTWEAR						
boot makers	67	104	21	11	4	
shoe makers	3	-	-	-	-	
boot repairers	-	-	25	11	9	
boot sewer	-	1	-	-	-	
sole sewer	-	2	2	2	-	
boot closers & finishers	-	-	2	1	-	
boot machinist	-	1	-	-	-	
boot upper makers	-	2	-	-	-	
slipper makers	1	-	-	-	-	
subtotals	*71*	*110*	*50*	*25*	*13*	
ENGINEERING & METAL PRODUCTS						
wheelwrights	4	4	-	-	-	
wheelwright & smith	3	-	-	-	-	
coachmaker	1	-	-	-	-	
coach trimmers & painters	4	5	2	-	1	
motor mechanics & engineers	-	1	6	2	3	
blacksmiths	10	10	3	1	2	
farriers & shoeing forges	-	9	3	1	2	
tinsmiths	9	3	2	-	1	
whitesmiths & toolmakers	1	-	-	-	-	
locksmiths & gunsmiths	2	-	-	-	-	
silversmiths	1	-	-	-	-	
watchmakers	5	5	5	2	2	
gold stampers	-	-	2	1	-	
jewellers	1	2	6	6	-	
cutlers	-	2	-	-	-	
metal stampers	-	-	1	1	-	
die makers & sinkers	-	-	1	1	-	
fitters & turners	2	-	-	-	-	
machinists	2	-	-	-	-	
iron workers & sheet metal workers	-	1	3	-	-	
wire drawers	2	-	-	-	-	
tank makers	-	-	1	1	-	
oxy-welder	-	-	1	-	1	
cycle engineers & machinists	-	1	-	-	-	
cycle depot	-	1	-	-	-	
cycle repairers						
subtotals	*47*	*44*	*36*	*16*	*12*	

...ble 9: continued: A Comparison of Factory & Non-Factory Manufacturing in Collingwood 1870, 1900 & 1930.

...LINGWOOD - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930		
	1870	1900	1930	COLL'WD	ABBOTS.	CLIF.H
...NEERING & METAL PRODUCTS, continued:						
...ing works	1	-	1	-	1	-
...works & shot manufrs.	-	-	1	-	-	1
...makers & builders	-	-	6	2	3	1
...manufr. & bicycle works	-	2	-	-	-	-
...totals	*16*	*43*	*71*	*23*	*34*	*14*
...OUS TRADES & ANIMAL BY-PRODUCTS						
...ing down works	1	-	-	-	-	-
...works	1	1	1	-	1	-
...works		1	-	-	-	-
...ge works	1	2	1	-	-	1
...works	1	3	2	-	2	-
...scourers	3	-	-	-	-	-
...engers	2	3	1	-	1	-
...ers & leather dressers	1	4	2	-	2	-
...eries	1	1	6	2	1	3
...ers & curriers	1	-	1	-	-	1
...er manufrs.	-	1	-	-	-	-
...manufg. works	-	-	1	-	1	-
...footwear leather goods manufrs.						
...totals	*12*	*16*	*15*	*2*	*8*	*5*
...ER PRODUCTS & FURNITURE						
...er mills & moulding mills	-	1	1	-	1	-
...ding manufrs.	-	-	1	1	-	-
...nery works	-	2	2	-	-	2
...r factories	-	1	1	1	-	-
...r manufrs.	-	-	2	1	1	-
...stead makers	-	1	-	-	-	-
...net factory	-	1	-	-	-	-
...iture factories (unspecified)	-	1	2	2	-	-
...iture manufrs. (unspecified)	-	2	17	16	-	1
...furniture manufrs.	-	-	1	-	-	1
...epiece manufrs.	-	2	3	1	1	1
...d furniture manufrs.	-	-	1	-	-	1
...ware manufrs.	-	-	1	-	-	1
...ing case factory	-	1	-	-	-	-
...& case manufrs.	-	-	9	5	3	1
...erage	-	-	2	1	1	-
...totals	-	*12*	*43*	*28*	*7*	*8*
...LDING PRODUCTS						
...e manufrs.	-	1				
...eous plaster manufrs.	-	-	1	-	-	1
...crete & cement works	-	-	2	-	1	1
...ilers & figure moulders	1	1	1	-	-	1
...mental masons	-	3	4	2	-	2
...totals	*1*	*5*	*8*	*2*	*1*	*5*
...MICALS						
...nt, varnish & lacquer manufrs.	-	-	2	1	1	-
...arabic works	-	1	-	-	-	-
...cklead & oil works	-	1	-	-	-	-
...e polish & boot ink manufrs.	-	-	4	1	-	3
...tographic film manufrs.	-	-	1	-	1	-
...ufg. chemists	-	1	1	1	-	-
...infectant manufr.	-	1	2	1	-	1
...alyptus distiller	-	1	-	-	-	-
...e. chemical manufrs.	-	-	3	1	2	-
...totals	-	*5*	*13*	*5*	*4*	*4*
...ER VEGETABLE PRODUCTS						
...kers	4	6	7	4	1	2
...er product manufrs.	1	-	2	-	2	-
...er pattern makers	-	-	1	1	-	-
...manufr.	-	1	-	-	-	-
...sh manufrs.	-	3	-	-	-	-
...dows & washing board makers	1	-	-	-	-	-
...ch factory	-	-	1	-	1	-
...ff works	1	-	-	-	-	-
...totals	*7*	*10*	*11*	*5*	*4*	*2*
...CELLANEOUS						
...ber goods manufrs.	-	-	2	-	1	1
...manufrs.	-	-	3	-	-	3
...k makers	-	-	2	1	-	1
...ical instrument manufrs.	-	-	1	-	-	1
...works	-	-	1	-	1	-
...k hanger manufrs.	-	-	1	1	-	-
...ificial flower manufr.	-	-	1	1	-	-
...let goods manufrs.	-	-	1	1	-	-
...ss & emery paper manufrs.	-	-	1	-	1	-
...sh case manufrs.	-	-	1	-	1	-
...tery manufrs.	-	-	1	1	-	-
...& Gibson unspec. factories	-	-	4	4	-	-
...er misc. & unspec. factories	-	-	2	1	1	-
...totals	-	-	*21*	*10*	*5*	*6*
...ALS	54	173	356	158	124	74

COLLINGWOOD - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930		
	1870	1900	1930	COLL'WD	ABBOTS.	CLIF.H
NOXIOUS TRADES & ANIMAL BY-PRODUCTS						
saddlers & harness makers	3	12	-	-	-	-
leather cutters	2	-	-	-	-	-
whip makers	-	2	-	-	-	-
dyer & scourer	1	-	-	-	-	-
subtotals	*6*	*14*				
TIMBER PRODUCTS & FURNITURE						
joiners	6	1	-		-	-
wood carvers & engravers	2	-	-	-	-	-
wood workers & turners	1	-	3	2	1	-
seat & chair makers	-	4	4	1	1	2
chair caners	-	3	-	-	-	-
cabinet makers	10	10	8	6	1	1
venetion blind makers	-	1	-	-	-	-
laddermakers	1	1	-	-	-	-
upholsterers	2	1	5	4	-	1
coopers	2	3	1	-	-	1
boot trunk maker	-	1	-	-	-	-
case makers	-	-	1	1	-	-
subtotals	*24*	*25*	*22*	*14*	*3*	*5*
BUILDING PRODUCTS						
brickmakers	8	-	-	-	-	-
potters	1	-	-	-	-	-
concrete & cement workers	-	-	2	2		-
stone cutters	1	-	-	-	-	-
subtotals	*10*	-	*2*	*2*		-
CHEMICALS						
oil & colour maker	-	1	-	-	-	-
subtotals	-	*1*	-	-	-	-
OTHER VEGETABLE PRODUCTS						
compositors	4	-	-	-	-	-
working printer	1	-	-	-	-	-
wicker workers & basket makers	1	2	6	4	2	-
brush makers	-	-	1	-	-	1
stay makers	1	-	-	-	-	-
subtotals	*7*	*2*	*7*	*4*	*2*	*1*
MISCELLANEOUS						
picture frame maker	-	5	-	-	-	-
piano maker	-	1	-	-	-	-
subtotals	-	*6*	-	-	-	-
TOTALS	239	352	316	181	83	52

In Abbotsford, on the other hand, most manufacturing development prior to the late 1890s, had been concentrated within the narrow strip of land between the Yarra River and Victoria Street to the east of Albert Street. Geographically, this small zone had much in common with Richmond's early industrial development and it was far closer to Richmond (on the other side of Victoria Street) than it was so the commercial centre of Collingwood along the Smith Street and Wellington Street axes.

A comparison of the 1900 & 1930 *Sands & McDougall Directories* suggests that the number of factories in Collingwood more than doubled during the first three decades of the 20th century, with the most remarkable growth being recorded in the food & drinks, clothing & textiles, footwear, engineering, timber products & furniture, chemicals and miscellaneous sectors. At the same time entries in the directories relating to retail manufacturing businesses and self-employed manufacturers declined by 10% overall. Collingwood proper continued to have the greatest concentration of factories within the municipality, but by 1930 Abbotsford had achieved almost 35% of the total and Clifton Hill 21%. (refer to *table 10*)

Growth in food & drinks manufacturing was particularly significant in Abbotsford, where a number of important factories from this period survive. The Phoenix Biscuit Company was originally established in Lygon Street, Carlton, in 1893, by Michael Condon and five sons. They subsequently moved to Leicester Street in Carlton, and when this site became too small in 1901, the business was moved again to the corner of Grosvenor Street & Southampton Crescent in Abbotsford where they occupied a two-storied brick building built for the Melbourne Ice Company in about 1890. By 1902, the company was employing some 100 people at the Abbotsford in the manufacture of cakes and biscuits and had installed a complete up-to-date plant including large store rooms and freezers and automatic revolving ovens. Subsequent expansion over the next 30 years saw two additional buildings purchased, on the south-west corner of Grosvenor Street and Southampton Crescent, and opposite on the east side of Grosvenor. The later building was originally erected for the Australian Asbestos Co. in 1888. An overhead bridgeway was built across Grosvenor Street between this building and the first building and it survives today forming a important element of the streetscape. The Phoenix Biscuit Company is still operating on the sites today, producing 'Westons' biscuits and 'Susan' cakes, and all of the original buildings survive.[1]

Nearby, in Bond Street, is a two-storied bluestone and brick building that still bears the sign 'Bates Cocoa Mills'. Bates & Co. was a well-known confectionery business that had been established at the corner of Flinders Lane and Swanston Street, in the city, in 1860 by Charles Fisher Bates. The Abbotsford premises was opened in 1901 in a former school building and was used for the manufacture and packaging of chocolate confectionery, employing about 30 people. Like MacRobertson in Fitzroy, Bates & Co. benefited from the abolition of interstate tariffs after Federation, enabling it to build up an extensive interstate trade in confectionery.[2]

Flour milling also continued to be an important manufacturing activity in Abbotsford during the late 19th and early 20th centuries. In 1887 a completely new flour mill, known as the Yarra Falls Roller Flour Mills, was built on the former site of Dight's Mill, at a cost of £25,000. The mill machinery was coupled to both a pair of hydraulic turbines and a 250 horsepower steam engine to provide alternative power when the river level was too low. Although the turbine house was built directly over the end of the existing water race, the main mill buildings were positioned to the east of the original mill site, in the area now covered by the freeway embankment. Two large galvanised-iron grain stores were also erected higher up the site and a siding was built along the south side of Reilly Street to serve the mill after the opening of the northern section of the Collingwood Railway line in 1888. In 1891, the new Yarra Falls Mill was sold to the Melbourne Flour Milling Co. Ltd., who operated it intermittently throughout the 1890s and early 1900s, up until 1909 when it was sold to the South Australian based milling company, John Darling & Sons. Shortly afterwards the mill was burnt by fire and abandoned. The remains of the buildings then lay derelict for another 20 years before the site was finally cleared. Only the bluestone race and the lower section of the turbine house walls and steel floor joists now survive.[3]

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1 *Sands & McDougall Directories*; Smith, vol.1, pp.552-3; *Collingwood Conservation Study.*

2 Smith, 1904, vol.2, pp.145-6; *Collingwood Conservation Study.*

3 Lewis, 1990, pp.77-84; *MMBW Sewerage Plan* No.38 160ft.:1 in.

Meanwhile, David Stratton & Co. Ltd. opened the second roller flour mill in Abbotsford in 1902 a little further west, on the corner of Lulie and Reilly Streets. This mill was fitted out by Ganz & Co. with second-hand plant from an earlier mill at Moama and it made use of the same siding as the Melbourne Flour Milling Co.. Whereas Fitzroy's last flour mill closed in 1905, D. Stratton & Co. were able to keep milling in Abbotsford until 1963, chiefly because they had access to a railway line for the delivery of wheat. Like most other medium sized flour mills in Victoria, Stratton's Abbotsford mill was closed until the flour milling industry rehabilitation scheme, and its building has since been demolished. The two-storey building that survives on the corner of Langridge and Charles Streets was used by John McAlpin for baking and self-raising flour manufacture between 1891 and 1959, but does not appear to have ever been used for flour milling.[1]

All of Melbourne's breweries struggled to remain profitable during the 1890s as the economic recession caused beer sales to fall dramatically. Crisp's Burton Brewery was bought out by the Carlton Brewery Ltd. in 1899 and closed down, as was the Yorkshire Brewery also in 1899, whilst the Victoria Brewery Co. went into liquidation in 1892 and was sold to a group of London investors two years later. In a bold move the new owners spent £80,000 installing a revolutionary new 50,000 barrel Pfoudler-Hammel Vacuum Process plant especially imported from America, to produce lager beer, but the company was in further financial difficulties by 1904 and was sold by auction to the Carlton Brewery Ltd.[2]

In 1903, in an attempt to combat excessive price competition, a group of Melbourne's six leading breweries, including the Victoria Brewery, Carlton Brewery, the Shamrock Brewery, the Foster Brewing Co., and McCracken's City Brewery, met to form the Melbourne Society of Brewers. A minimum price was fixed for all beer sales and an agreement was reached on a subsidy to be paid to any member of the society that was forced to operate at under its standard capacity in order to maintain prices. The direct outcome of this agreement was the formation of the Melbourne Co-operative Brewing Company by a group of independent hotelkeepers who objected to the society's attempts to control the Melbourne beer trade by price fixing. The co-operative purchased the disused Vauxhall Distillery in Bent Street, Abbotsford, adjacent to the river and immediately set about constructing their own brewery on the site.[3]

In 1907, the six member companies of the Society of Brewers formally amalgamated to form the single company, Carlton & United Breweries Ltd. The following year C.U.B. also bought the Yorkshire Brewery in Collingwood from Ballenger Brewery Pty. Ltd. that had been started by one of their former head brewers. Manufacturing facilities of the combined company were immediately rationalised with the Carlton and Victoria breweries becoming the main plants, whilst the Shamrock, Fosters and Yorkshire Breweries were closed down but retained intact for a number of years as emergency standby plant. By 1913, the C.U.B. had established a considerable interstate and export trade of some 12,000 hogsheads a year, but they were under considerable pressure due to competition from the rival Melbourne Co-operative Brewing Co. The later company had also built up a significant export market of 5,200 hogsheads a year from their Abbotsford plant and had a virtual stranglehold over the local market for stout. In 1914 they introduced 'Abbots Lager' in direct competition with Fosters Lager.

Following the First World War, Victorian beer consumption grew dramatically and the C.U.B. began another aggressive expansion drive buying up a number of country breweries and dozens of hotels throughout the state. By 1928, C.U.B. had established a network of 647 metropolitan and 340 country hotels and clubs throughout Victoria that provided it with a guaranteed base market. After years of intense rivalry, the C.U.B. and the Melbourne Co-op Brewing Co. (Victoria's only two major remaining brewers) finally agreed to an amalgamation in 1925, which saw shareholders in the Co-operative Co. gain a one-third interest in C.U.B..

The expanded C.U.B. retained the Abbotsford, Victoria and Carlton breweries as its three major manufacturing plants whilst other former brewing sites that it still owned in Collingwood were used for storage or bottling, or sold to associated malting companies. During the late 1960s and

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[1] Lewis, 1990, p.86; *Sands & McDougall Directories*.

[2] *History of C.U.B.*, pp.7-8.

[3] *History of C.U.B.*, p.36; *Sands & McDougall Directories*.

1970s the Abbotsford brewery site was progressively cleared and rebuilt on a larger scale introducing more modern technology. As a result of this re-development all traces of original Abbotsford brewery plant and the former distillery that occupied the same site have now disappeared, with the exception of a section of bluestone walling incorporated into a retaining wall along the Yarra bank. It is believed that this was once part of the outer walls of the Vauxhall distillery building built during the 1890s. With the completion of modernisations at the Abbotsford site in the late 1980s, C.U.B. transferred all its Victorian manufacturing operations there and closed down both the Carlton and Victoria Breweries. Significant 19th century buildings survive today on the three sites of the Victoria, Yorkshire and Fosters Breweries.

By the early 1900s all of Collingwood and Abbotsford's distilleries had closed, but malting was developing as a significant new industry in its own account. The first independent malting works in Collingwood appears to have been opened by Job Stanton and Chadwick, in Islington Street, in 1878. By the following year Thomas Hood had replaced Chadwick in the partnership and the business was renamed J. Stanton & Co.. By the late 1890s, Stanton had also left and the business was continued by Thomas Hood until 1909 when his sons took over and renamed it C.& A. Hood. The original two-storied brick malthouse built by Chadwick survives at 61 Islington Street, together with two adjacent buildings of two and three stories which carry signs 'Grain Stores' and '1928 James Hood & Co. Pty. Ltd.' on the gables. The firm are operating as maltsters on the site and all buildings are still in use, although they have been partly modified.[1]

Nearby in Northumberland Street, the former Victoria Distillery building was taken over by Samuel Burston & Co. Ltd. as a maltworks in about 1910. This firm is also still in business today as Barrett Brothers and Burston & Co. Pty. Ltd.. Also still in business in the same are is Joe White Maltings Ltd. which occupies a number of buildings in Rokeby Street including the former Fosters brewery building. Today these surviving maltworks, with their gentle aromas of malting barley and the associated prominent concrete grains silos (built after 1930), form an important historical link with Collingwood's once extensive brewing industry.[2]

Undoubtably the most significant manufacturing development in Abbotsford and Clifton Hill during the late 1890s and early 1900s was the emergence of large multi-storied boot & shoe factories built on a scale not previously seen anywhere in Australia. Along the east side of Hoddle Street, the multi-storied boot & shoe factories of A. Williams', Whybrow's, the Clifton Shoe Co. and H. Llewellyn (Regent Shoe Co.), all built between 1900 and 1930, still form prominent landmarks, whilst in the vicinity of Noone and Roseneath Streets, there is an equally important surviving concentration of more medium-sized boot factories associated with such important manufacturers as Charles Trescowthick, J.M. Hanson and the Pitman Shoe Co.

As was the case in neighbouring Fitzroy, it was largely the introduction of new forms of bootmaking machinery and cheaper motive power from gas engines and electric motors that stimulated the move towards factory-based footwear manufacture in Collingwood, but the availability of larger areas of vacant land in Abbotsford and Clifton Hill seems to have been equally significant to some of the larger scale developments in the area. The most rapid expansion occurred during 1902-3, when the removal of former intercolonial trade tariffs opened up Australia-wide markets virtually overnight, allowing some of the leading firms to experience three or four-fold increases in the size of their workforce over just 12 months.

Arthur Williams, for example, opened his first boot factory in Kerr Street, Fitzroy, in 1890. Four years later he moved to a larger factory in St. Georges Road, and then in 1903 built his own three-storied factory in Gipps Street, Collingwood. On the top two floors he installed all the latest bootmaking machinery from brands such as 'Goodyear', 'Lightning', 'Globe' and 'Jones', driven by a 12 horsepower Crossley Otto-type gas engine. He concentrated mainly on the production of ladies boots and shoes, particularly the premium coloured lines, and by 1905 was producing 2,000 pairs a week. In 1909 he moved again to the larger four-storey factory that still stands near the corner of Langridge and Hoddle Streets.[3]

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1 *Sands & McDougall Directories*; *Collingwood Conservation Study*.

2 *Sands & McDougall Directories*; *Collingwood Conservation Study*.

3 Smith, 1905, vol.3, pp.100-3.

Arthur Wybrow commenced his boot & shoe making business in two small rented cottages in Studley Street, Abbotsford, in 1890. By the following year he had 30 employees and by 1901 the number had grown to 350, with an output of 300,000 pairs of boots a year. By 1904 Whybrow & Co. occupied four buildings covering the whole of the block bounded by Studley, Hoddle and Stafford Streets, and the workforce had reached 700 with export orders being received at the rate of £5,000 a month.[1] In October 1903, when the company built a new warehouse and office building adjacent to the railway, a reporter for the *Australian Leather Journal* was prompted to write:

> *Still the huge factory of Messrs Whybrow & Co. in Abbotsford, continues to expand in dimensions, absorbing like a great monster, the adjoining allotments and cottages, and causing each and all to marvel at the continuity of its marvellous growth.*[2]

The surviving three-storey factory at 198-210 Hoddle Street was built in 1914 to replace a number of smaller buildings that Whybrow & Co. had previously occupied on the site.

Further expansion of boot factories west of Hoddle Street, in Collingwood itself, also occurred in the late 1890s and early 1900s, although on a more moderate scale. Smalley & Harkness's factory in Islington Street (built in 1898-1903), and William Peatt's factory at the corner of Wellington and Langridge Streets (built in 1900-1906), where a staff of 120 was employed, are fine surviving examples from this period.

By far the most significant manufacturing development in Collingwood proper during the early 20th century, was the emergence of the Foy & Gibson empire. The Scottish born immigrant William Gibson and his partner Mark Foy had opened their first clothing store on Smith Street in 1883. In about 1895 they erected their first clothing warehouse house and factory in Oxford Street, designed by the well-known Melbourne architect William Pitt. By 1900, Foy & Gibson had several retail shops on either side of Smith Street and in 1912 they opened an immense emporium on the Fitzroy side of Smith Street, which became the forerunner of the modern department store concept.

Foy & Gibson Ltd. was floated as a public company, in 1903, with an nominal capital of £375,000 which provided the investment necessary to diversify into a wide range of manufacturing activities based in Oxford and Cambridge Streets, Collingwood. Over the next 20 years, the company's manufacturing complex expanded to cover almost 15 acres over three blocks incorporating a fully integrated woollen mill performing everything from scouring and carding to spinning, dying and weaving. Other parts of the complex included hosiery mills and factories to produce clothing, bedding, cabinets, furniture and metal goods. The company also built its own powerhouse and an engineering workshop where much of their machinery was either manufactured or repaired. As a textile manufacturer alone, Foy & Gibson rivalled the other major Victorian textile manufactures of the early 20th century, such as the Yarra Falls Mills in Abbotsford and the Lincoln Mills in Coburg, but together with their other retailing and manufacturing activities, they represented an organisation that was unique in Victoria in its size and diversity, prior to the Second World War.[3]

Alongside the Foy & Gibson complex in Collingwood, Abbotsford also emerged as a major centre for the textile industries during the inter-war years, with much of the previously vacant land between Johnston Street and Trenerry Crescent and the Yarra River being taken up by the development of textile mills. Yarra Falls Spinning Co. Pty. Ltd. was founded in 1917 to provide textiles for war manufacturers. The earliest of the surviving buildings from their site at the eastern end of Johnston Street is the weaving mill that was built in 1919 and subsequently extended in 1922. By 1922, Yarra Falls had also established weaving & cotton mills at 80-100 Trenerry Crescent and the following year their workforce reached 600. Between 1926 and 1929 the company expanded further with the construction of a powerhouse and new spinning mills in Trenerry Crescent. The United Felt Hat Mills at 112 Trenerry Crescent (formerly Shelmerdine's Hat Factory) was purchased in 1927 and rebuilt as the Austral Silk & Cotton Mills for a subsidiary of Yarra Falls P/L.

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[1] *Australian Leather Journal*, 15.11.1901, p.446; 15.12.1902, p.542 & 15.01.1904, p.653.

[2] *Australian Leather Journal*, 15.10.1903, p.426.

[3] *Fitzroy: Melbourne's First Suburb*, p.204; *Collingwood Conservation Study.*

Other more unusual industries established in Abbotsford during the 1920s included the Dunlop-North British Rubber Shoe Company's factory at the corner of Trenerry Crescent and Alexandra Parade, which was demolished during the 1970s to make way for the Eastern Freeway (Hewlett-Packard now occupies a portion of the site); the Tweedside Woollen Mills at the corner of Victoria Crescent and Albert Street; the Cyclone Fence and Gate Company in Gipps Street (from which the office building but not the factory survives);and the Kodak photographic film plant in Southampton Crescent (from which a large five-storied office block survives).[1]

Analysis of Surviving Factory Buildings in Collingwood, Abbotsford & Clifton Hill

The *Sands & McDougall Directory* indicates that there were about 335 factories operating in the municipality of Collingwood by 1930 *(Table 9)*. This study has identified 101 former factories and related buildings in Colingwood, Abbotsford & Clifton Hill that were built before 1931. Thus about 30% of all factory buildings in existence throughout the municipality in 1930 survive today, which is similar to, though slightly lower than, the proportion of surviving factory buildings in Fitzroy.

Table 10 compares the surviving pre-1931 factory, buildings in the municipality of Collingwood with the original proportions of each manufacturing sector, by dividing the surviving buildings into groups according to the manufacturing sector in which they were being used in 1930. From this analysis it can be seen that two of the leading sectors of Collingwood's manufacturing industries in 1930 (Engineering & Metal Products and Timber Products & Furniture) are significantly under-represented amongst the surviving factory buildings, whilst the Food & Drink, Clothing & Textiles and Footwear sectors are significantly over represented. This is probably a reflection of both the more substantial nature of buildings used by the later three industries and of the continuing importance of these manufacturing sectors in Collingwood during the post Second World War years when other sectors were declining.

If the distribution of surviving factory, buildings is compared with the historical distribution of factories in the Collingwood municipality indicated by the 1930 *Sands & McDougall Directory*, it can be seen that factories in Abbotsford and Clifton Hill have faired rather better than those in Collingwood. Abbotsford, which accounted for only 19.7% of all factories in the municipality in 1930, now has 30 .7% of all surviving factory buildings and Clifton Hill, which accounted for 29.9% of all factories in the municipality in 1930, now has 29.7% of all surviving factory, buildings, whilst Collingwood, which accounted for 50.4% of all factories in the municipality in 1930, has been left with only 39.6% of surviving factory buildings.

The one exception to this general pattern in Collingwood is the former Foy & Gibson complex in the area bounded by Smith, Peel, Wellington and Stanley Streets, where all of the 12 major buildings completed by 1930 have survived more or less intact, except for the power house, which was gutted by fire in 1991, and the major retailing building in Smith St. was demolished in the 1970s. In other areas of Collingwood, many of the smaller factories still in use in 1930 appear to have since been demolished to make way for later residential, manufacturing and retailing buildings. This is particularly noticable along the main transport routes of Hoddle Street, Johnson Street, Wellington Street and Smith Street, and on the flats east of Wellington Street, where few of the manufacturing premises in use in 1930 appear to have survived *(refer to map 6)*.

The most significant concentrations of surviving pre-1931 factory buildings in Abbotsford, are the large multi-storied boot & shoe factories between Hoddle Street and the railway, and the textile mills and noxious industries along the river banks together with Denton's Hat Mills in Nicholson & Mollison Sts. *(refer to map 7)*. The loss of manufacturing buildings along major transport and retailing corridors that was observed in Fitzroy and Collingwood has also occurred in Abbotsford with many of the smaller manufacturing premises along Johnson Street and Victoria Street having disappered. Elsewhere throughout Abbotsford, many of the smaller boot & shoe factories have also disappeared.

[1] *Sands & McDougall Directories.*

In Clifton Hill, the largest concentration of surviving pre-1931 factory buildings is along Hoddle Street, Alexandra Parade, Noone Street and Roseneath Street where many turn of the century boot factories survive. Of equal importance, however, is the concentration of surviving tanneries, enginneering works and noxious industries along the former Reilly Street drain. Together, these two groups of factories form a historic precinct that is of equal omportance to the Foy & Gibson complex in Collingwood, because it represents all three of the industries most characteristic of Collingwood's manufacturing history, namely engineering, noxious trades and footwear. Elsewhere the spread of surviving pre-1931 factory buildings in Clifton Hill is quite scattered - similar to the pattern in the more residential North Fitzroy. Once again, the major transport corridor, Queen's Parade, has lost most of its pre-1931 manufacturing buildings. *(refer to map 8)*

Compared with Fitzroy, a much larger proportion of the surviving factory buildings in Collingwood, Abbotsford & Clifton Hill are still in use for manufacturing purposes (41%). The proportion that have been converted to other commercial uses (incl. offices, salesrooms & warehouses) is similar (41%), whilst the proportions of former factory building that were vacant at the time of investigation (6%) or have been converted to residential use (1%), are much lower than in Fitzoy.[1] *(refer to table 10)*

Table 10: Analysis of Surviving Factory Buildings in Collingwood and Comparison with Historical Distribution by Factory Type.
compiled from Sands & McDougall's Directory of Victoria for 1930 & Summary List of Sites Examined

MANUFACTURING SECTOR	Sands & McDougall's Directory of Victoria - 1930		Factory Study - Surviving Factory Buildings Recorded in Collingwood		
	Number of Factories in Collingwood	Proportion of Total	Number Built pre 1931	Proportion of pre 1931 Total	Number Built post 1930
Food & Drinks	28	8.4%	15	14.9%	-
Clothing & Textiles	38	11.3%	22	21.8%	-
Footwear	101	30.1%	36	35.6%	-
Engineering & Metal Products	61	18.2%	10	9.9%	1
Noxious Trades & Animal By-products	13	3.9%	5	4.9%	-
Timber Products & Furniture	37	11.0%	7	6.9%	-
Building Materials	11	3.3%	-	0.0%	-
Chemicals	13	3.9%	2	2.0%	-
Other Vegetable Products	5	1.5%	-	0.0%	-
Miscellaneous Products	28	8.4%	4	4.0%	-
TOTALS	335	100%	101	100%	1

[1] Of the remainder of surviving pre-1931 factory buildings in the Collingwood municipality, 3% have been converted to other miscellaneous uses (such as education), whilst the function of the other 7% could not be determined

BRUNSWICK

The industrialisation of Brunswick was initially dependent on its position as a supplier to the building boom in Melbourne. This was true in both the exploitation of the brick clays on which the suburb stood and in the development of timber and moulding mills, and in the establishment of foundries. By the turn of the century each of these areas expanded and diversified; brickworks were joined by domestic and architectural terracotta and stoneware potteries; timber mills by joineries, moulding mills, sash factories and stair builders; and foundries by sheet metal, wrought iron and engineering works. The last decade of the nineteenth century also saw the development of two specialised industries; steel foundries and textile factories. The foundries were driven out by a more environmentally conscious Council in the 1960s while the textile firms, having enjoyed considerable success from the 1930s to 1960s were decimated during the last 15 or 20 years by competition from imports. Many specialist spinning, weaving and knitting mills as well as clothing factories, hosiery knitters and synthetic fibre mills gave the Brunswick and Coburg textile industry an exceptionally diverse and comprehensive variety of firms. Today, the ranks of empty and derelict textile factories along Lygon St. pose a depressing sight.

Brickworks & Potteries

The Brunswick brickmaking industry received its first major impetus from the post-gold rush building boom of the 1850s. By 1859 there were at least 9 brickyards operating in Brunswick and within the next two years a further 21 claypits and brickyards were opened. Most of these brickyards were located along Albert Street, Victoria Street (to the west of Sydney Road) and along Barkly Street (to the east of Sydney Road) *(refer to Map 9).*

By 1871, there were some 44 brickworks and potteries in Brunswick, producing 22 million bricks a year, equivalent to 30% of Victoria 's total production.[1] *(table 12).* Most of the early Brunswick brickworks exploited residual and colluvial clay deposits lying just belong the surface, that could be easily dug up and worked, but as these deposits were worked out they turned instead to the underlying Silurian mudstone which brought with it the need for steam or horse-driven machinery to grind the stone and press it into moulds. The Barkly Brick Co. in Barkly Street were using a steam engine as early as 1861 and were probably the first brickworks in Brunswick to have done so.[2]

By 1870, the Statistical register records that three of the Brunswick brickyards had steam engines and another 37 had horses to drive machinery. Together these were driving 62 machines for grinding clay & mudstone and 19 presses for forming the bricks.[3]

The true industrialisation of Brunswick's brickworks, however, did not begin until the Hoffman Patent Brick and Tile Company was formed in 1870 by three prominent Melbourne merchants, Jenkin Collier, David MacKenzie Barry and William Owen. The aim of these three men was to produce standard quality bricks in large quantities through the use of mechanised processes and the Hoffman continuous kiln, a revolutionary new type of kiln developed in Prussia in 1859.[4] With an initial capital of £12,000, they erected a large brickworks with two Hoffman kilns and British-made Bradley & Craven brick presses, in Albert Street, Brunswick. Collier, Barry, Owen & Roche had first opened a traditional brickyard on this site in 1863 to produce bricks for railway construction projects.

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1 Di Macleod & Ian Newman *Clay Industry Sites of Brunswick 1849-1990,* 1990.

2 *Statistical Register, Production,* 1870.

3 *Statistical Register, Production,* 1870.

4 The Hoffman brick kiln developed by Fredrich Hoffman in Stettin, Prussia, in 1859, allowed bricks to be fired in a 'continuous' process producing bricks of a more uniform standard whilst at the same time using less fuel than a conventional batch kiln. The Hoffman kiln was divided into a series of chambers, through which heat from the fire passed successively in such a manner that the waste heat from the high temperature curing could be used to dry out 'green' bricks awaiting firing.

MAP 9.

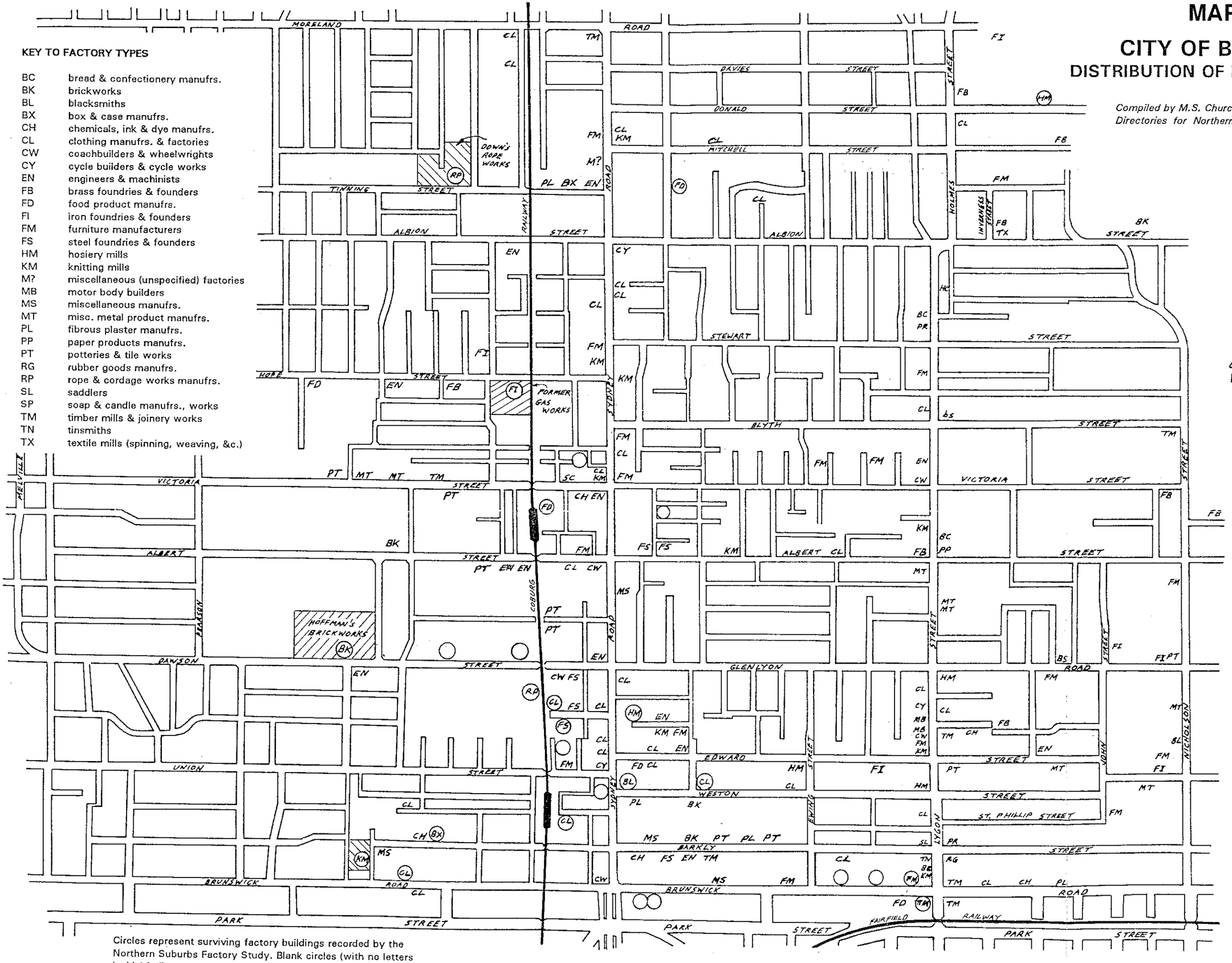
CITY OF BRUNSWICK

DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study

KEY TO FACTORY TYPES

BC	bread & confectionery manufrs.
BK	brickworks
BL	blacksmiths
BX	box & case manufrs.
CH	chemicals, ink & dye manufrs.
CL	clothing manufrs. & factories
CW	coachbuilders & wheelwrights
CY	cycle builders & cycle works
EN	engineers & machinists
FB	brass foundries & founders
FD	food product manufrs.
FI	iron foundries & founders
FM	furniture manufacturers
FS	steel foundries & founders
HM	hosiery mills
KM	knitting mills
M?	miscellaneous (unspecified) factories
MB	motor body builders
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PL	fibrous plaster manufrs.
PP	paper products manufrs.
PT	potteries & tile works
RG	rubber goods manufrs.
RP	rope & cordage works manufrs.
SL	saddlers
SP	soap & candle manufrs., works
TM	timber mills & joinery works
TN	tinsmiths
TX	textile mills (spinning, weaving, &c.)



Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

Table 11: Manufacturing in Brunswick 1870-1976.

compiled from The Statistical Register of Victoria, 1870-1910; Victorian Year Book, 1935-1950 & Manufacturing in Melbourne, Report of the Technical Advisory Committee, M.M.B.W., 1979, p.39.

Municipality	Year	Number of Manuf.ing Works Recorded	Number of Steam Powered Works	Number of Gas Engine Powered Works	Number of Horse Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees[δ]	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £
Brunswick Borough	1870-71	49	4	-	38	127	320	14,640	11,110
Brunswick Borough	1875-76	45[φ]	9	-	32	177	338	22,515	16,700
Brunswick Borough	1880-81	44	14	-	17	188	450	42,424	31,610
Brunswick Borough	1885-86	50[∞]	30	3	12	532	977	71,755	45,315
Brunswick Town	1890-91	44	32	1	1	969	978	109,725	78,410
Brunswick Town	1896	36	18	7	-	1,294	748	90,710	78,360
Brunswick Town	1900	49	21	14	1	1,409	1,777	93,964	114,325
Brunswick City	1910	107					2,794		
Brunswick City	1935-36	338					9,639	967,889	1,168,418[#]
Brunswick City	1940-41	355					11,985	1,177,537	1,493,813[#]
Brunswick City	1945-46	432					11,252	1,238,123	1,964,412[#]
Brunswick City	1950-51	555					13,169	2,991,145	4,356,128[#]
Brunswick City	1971						16,698		
Brunswick City	1976						14,501		

NOTES: [φ] All figures for this year exclude one brewery in Brunswick for which separate returns were not published.
[∞] All figures for this year exclude one tannery in Brunswick for which separate returns were not published.
[#] Includes value of both land & buildings.
[δ] All employment figures exclude outworkers.

Numerous problems were at first experienced with the new technology. The imported presses broke down frequently and had to be repaired by local engineering firms and the Hoffman kilns did not work as efficiently as had been anticipated until September 1871.[1] Never-the-less, despite these initial problems, Hoffman's succeeded in capturing 15% of Melbourne's overall brick production by late 1871 and was rapidly becoming an industry leader. A third kiln and another brickmaking machine were added to the works in 1875 at a cost of £4,000. By 1879, the Hoffman Brick Co. had made 120 million bricks since its inception and was employing 150 men and 50 horse-drawn drays to maintain deliveries. By this time, machine-made bricks had become widely recognised for their uniform quality and size. Many Government departments and local councils were specifying 'Hoffman' bricks in all contracts meaning only bricks made in a Hoffman kiln, to the benefit of the Hoffman Brick Co. but to the detriment of other brick manufacturers. Many inspectors were taking the words literally and ordering only from the one company.[2]

In 1882, the company was reformed as the Hoffman Patent Steam Brick Co. Ltd. in order to provide additional capital for expansion, but the original shareholders still maintained effective control. The new works were aimed at increasing the output of the works to 60,000 bricks a day, seeing the No. 1 kiln renovated and installing additional presses, a boiler and a larger chimney. The demand for bricks was at this time increasing so rapidly, that the directors purchased another 58 acres of land nearby, to provide additional space for new clay pits and workers' housing. In July 1884, the company was floated as a public company and the nominal capital almost doubled to £200,000 to provide funds for a No.2 works to be built in Dawson Street just south of the existing (No.l) works. The No.2 works initially had two Hoffman kilns and its own clay pits and steam powered crushers and presses. This time, much of the machinery was ordered from local manufacturers such as Anderson, Campbell & Sloss and Johnson's Tyne Foundry, in South Melbourne.[3] As soon as the Brunswick railway was completed, both works were connected to the railway by sidings for coal deliveries and dispatching bricks to country centres. Bricks destined for metropolitan customers still usually went by horse dray.

By 1886, the No.2 works were also turning out stoneware pipes, and the company was experimenting with the fancy white bricks and a Foster kiln, built to a radically new design which although an apparent failure, pre-empted the tunnel kilns of the mid-twentieth century. The company also built a number of cottages for some of its workers during this period.[4] The Hoffman brick company was enormously successful during these boom years and made huge profits. Hoffman's were not the only brickworks in Brunswick to prosper during the 1870s and 1880s. Amongst the other leading brickworks were Charles Butler & Sons, Barkly and South Brunswick.

The clay resource was also exploited by several potteries, the most successful of which were Ferry's Cornwell's, Wunderlich and Nolan's Gilbrook pottery. Much of their production was of architectural terracotta products such as roof tiles, decorative panels, drainage pipes, wall vents and footpath edgers. However, there was also a considerable amount of domestic ware and art pottery made, particularly at Cornwell's pottery which was renowned for its Majolica wares.

Aside from the brickworks and potteries, there had been little manufacturing development in Brunswick by 1870. The *Statistical Registers* record only five other factories in Brunswick in 1870 and the *Sands & McDougall Directories* tell a similar story *(tables 11 & 13)*. Over the next 30 years to 1900, however, Brunswick's manufacturing development became far more diverse, with significant growth in the clothing, engineering and timber products sectors in particular *(table 13)*. The *Statistical Registers* record a growth in the number of factories other than brickworks & potteries during this period from five to thirty-nine, whilst the *Sands & McDougall Directories* suggest that almost twice this growth rate may be closer to the mark.

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[1] T. G. Parsons 1971, pp.420-2. - Eventually, the Hoffman Brick Co. was to establish its own engineering workshops equipped with lathes and other machine tools needed to repair and modify the machinery, but castings were still obtained from local foundries.

[2] Parsons

[3] Parsons, pp.428-9.

[4] Parsons, pp.430- 1.

Table 12: Brickworks & Potteries in Brunswick 1870-1900.

compiled from The Statistical Register of Victoria, 1870-1900.

Year	Total Number of Works	Number of Steam Powered Works	Number of Horse Powered Works	Combined Motive Power of Engines h.p.	Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings £	Number of Bricks Produced	Value of Bricks Produced £	Value of Pottery Produced £
1870-71	44	3	37	121	298	14,090	10,450	22,154,000	45,750	10,375
1875-76	34	3	31	143	284	20,550	14,400	25,020,000	55,123	13,300
1880-81	24	5	16	139	320	36,725	21,665	20,156,000	39,267	17,200
1885-86	28	16	12	380	695	48,680	30,310	61,106,000	n.a.	26,530
1889-90	24	21	1	847	796	64,950	60,345	78,050,500	n.a.	24,500
1890-91	19	17	1	828	648	78,950	61,510	53,152,000	n.a.	24,700
1894-95	5	5	-	1,031	268	53,000	42,300	2,050,000	n.a.	17,000
1896	7	7	-	1,151	393	46,700	40,700	17,050,000	n.a.	37,335
1900	10	9	1	1,181	521	47,000	50,050	28,140,000	n.a.	50,670#

NOTES: # Includes value of tiles & pipes produced also.

Iron Foundries and Steel Works

During the boom decade of the 1880s, not only the brickworks, but also Brunswick's new iron foundries and timber mills enjoyed spectacular growth stimulated by a strong demand for building materials and domestic goods. The small iron foundry established by Oakley & Son in St Phillip Street in 1878, was probably Brunswick's first foundry. The business prospered while specialising in domestic products & builders' ironwork, such as kitchen ranges, grates, balcony railings, friezes and tomb railings. By 1903, Oakey & Co. had acquired the neighbouring Lygon Foundry, giving them three buildings including two separate castings shops on either side of St Phillip Street and a large showroom.[1] The surviving section of this firm's works in Weston Street backs onto the earlier St Phillip Street site and contains buildings dating from the early 1900s when the son Oliver Oakley was in charge of the business.

In 1879, the Melbourne hardware dealers, McMillan & Co. opened another foundry, in Edward Street, Brunswick. They produced tobacco cutters and a variety of household utensils such as tin openers and coke grates, lemon squeezers and standard imperial weights. After the death of the founder, Angus McMillan, in 1893, the business passed into the hands of two former employees, Thomas Johnson and John Bonwick.[2]

A new dimension was added to the Brunswick engineering sector in 1889 when three of Melbourne's pioneering steel founders, Charles Smith of Collingwood and Phillips and Dawson, of Carlton, joined forces to establish the Sheffield Crucible Steel Works in Michael Street, Brunswick adjacent to the railway line. By 1904, the Sheffield Steel Works covered an acre and had a furnace capacity of over two tons, making it the largest crucible steel works in Australia. Like John Pender, the Sheffield Steel Works depended on a strong export trade with other Australian States for much of their business which included special long-wearing high-strength components for railways and tramways, mining machinery and dredges.[3] In 1901, John Dawson, one of the partners, left the firm to establish his own steel foundry on the opposite side of Michael Street with his four sons.

Ropeworks

Another manufacturing industry in which Brunswick gained a widespread reputation, was rope and cordage manufacture. Ropemaking was an industry that required large, relatively flat sites in order to provide sufficient space for the long 'rope walks', which could be up to several hundred feet long, and over which the new ropes were drawn out during twisting. By the late 19th century, Brunswick was one of the few suburbs close to the city where such large, flat, vacant sites could still be found. In addition, once the first rope-works had been established in district, competition and the local source of skilled labour seemed to help draw further rope manufacturers to the suburb.

Robert Bugg established Brunswick's first rope-works in 1871, moving two years later to a larger site, where he built the Moreland Rope Works. By 1888, he was employing eight assistants and producing six times his 1873 output. Bugg's main specialty was clothes line. In about 1888, Jack & McLean established the Brunswick Ropeworks at the corner of Tinning Street and La Rose Street. This works subsequently changed hands in 1893, with George MacCarthy taking over but it had closed down by 1898.[4]

Alexander Downs opened his first ropeworks on Sydney Road in 1888. In 1890, he took his eldest son into the business as a partner and two years later they moved to the former Moreland Ropeworks site. In 1903, Down & Sons moved again to the larger eight acre site in Tinning Street were the defunct Brunswick Ropeworks stood. They renamed this site the Samson Cordage Works and began operations there with about 20 hands producing all types of cordage from twine to heavy

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[1] J. Smith, *Cyclopedia of Victoria*, Melbourne, 1903,v.2, p.188-9.

[2] Smith, vol.1, p.576.

[3] Churchward & Milner (1988), p.4.213-4; Smith, vol.2, p.186-7.

[4] *Keeping Brunswick's Heritage*, pp.218-20; Downs and Sons, *The First 100 Years*, Brunswick 1988

ropes. The surviving brick buildings on this site were built during two subsequent phases of expansion in 1907 and the 1920s, and replaced most of the original timber buildings.[1]

Brunswick's largest ropeworks was opened in 1909 by the prominent Victorian rope-makers James. Miller & Co. Pty. Ltd. on a 17 acre site in Dawson Street. This site was immediately adjacent to the Brunswick Railway line which proved to be a major advantage to a factory that was importing thousands of bails of hemp, cotton, jute and flax as raw materials. Miller's already had an existing factory in Yarraville where they produced bailing twine and jute sacks, but there appears to have been some product overlap with the new works. Miller's Brunswick factory closely copied the architectural style of the Yarraville factory (built in 1889), one of the only differences being that the Brunswick works were powered by two large suction gas engines, whilst the Yarraville factory had a 500 horsepower compound steam engine driving its machinery.[2]

Sawmilling

The Brunswick sawmilling industry began in 1883, when a fire destroyed the timber yard of James Swinbourn & Co. in Bourke Street, Melbourne, prompting the firm to relocate to a larger site on Sydney Road in Brunswick. As the building boom gathered momentum, the firm diversified its activities, establishing a large planning, moulding, turning and joinery works. Within five years, their turnover had increased four-fold and 95 people were employed in the business. The success of Swinbourn & Co. was repeated by others, such as Leithead & Cormick, who began on Sydney Road with three hands in 1886 and within three years were employing 75 hands in a planning, moulding & joinery works with an annual turnover of £60,000. Thomas Jardine opened the first timber yard in Brunswick Road in 1886, and by 1888 was employing 10 hands in a joinery and moulding works.[3]

Undoubtably the most successful of these timber millers was Alexander Sturrock. Sturrock was born in Collingwood in 1857 and was apprenticed to the joinery trade with a local firm. Later he went into business with his father as a builder and contractor, and with this experience opened his first timber yard and joinery works in Brunswick Road in 1887. When the building boom collapsed in the 1890s, many of the other Brunswick timber mills were forced to close, but Sturrock turned instead to inter-colonial markets and established a large box factory to produce fruit cases and cheese boxes required for agricultural exports. By 1902, Sturrock was operating from five sites in Brunswick Road and Barkly Street, that included two timberyards, a sawmill & moulding works and the box factory. His main sawmill and the box factory were located on the north side of Brunswick Road either side of Lygon Street. Here, more than 200 men were employed and 6 million super feet of imported timber and 100 tons of nails consumed each year to make fruit cases and cheese boxes. Sturrock even set up his own wire nail making plant.[4]

After the hiccup of the 1890s depression, the timber milling industry in Brunswick again expanded and diversified considerably during the first decades of the 20th century. By 1930, there was not only 10 sawmills, joineries and sash factories in Brunswick, but also a wooden block manufacturer (for road paving), two box factories and 21 furniture manufacturers. The development of furniture manufacturing in Brunswick during these years was much more marked than in neighbouring suburbs and appears to have been stimulated both by the proximity of so many timber mills and the rapid development of the retail trade along Sydney Road where there were 14 furniture dealers and warehouses by 1930.[5]

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[1] *Keeping Brunswick's Heritage*, pp.218-20; Downs and Sons, *The First 100 Years*, Brunswick 1988
[2] *Australasian Ironmonger*, 01.11.1918, p.297.
[3] Sutherland, vol.2, pp.
[4] Smith
[5] *Sands & McDougall Directory*, 1930. Figures counted between Brunswick Street and Moreland Road.

Table 13: A Comparison of Factory & Non-Factory Manufacturing in Brunswick 1870, 1900 & 1930.
compiled from the Sands & McDougall Directories.

BRUNSWICK - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930		
	1870	1900	1930	E.BRUNS	BRUNS	W.BRUNS
FOOD, DRINKS & TOBACCO						
breweries	-	1	-	-	-	-
pickle manufrs.	-	-	1	-	-	1
crumpet, cake & confectny. manufrs.	-	1	7	1	4	2
wholesale & manufg. bread bakers	-	1	8	2	5	1
bacon & ham curers	-	2	-	-	-	-
cigar manufrs.	-	2	1	-	1	-
other food products	1	-	1	-	1	-
subtotals	*1*	*7*	*18*	*3*	*11*	*4*
CLOTHING & TEXTILES						
cap manufrs.	-	-	1	1	-	-
underclothing manufrs.	-	-	3	1	2	-
mantle manufrs.	-	-	3	-	3	-
shirt factories	-	4	6	-	5	1
shirt manufrs.	-	-	6	1	5	-
juvenile clothing manufrs.	-	1	-	-	-	-
clothing manufrs. (unspecified)	-	6	15	1	12	2
clothing factories	-	3	5	1	4	-
bedding & quilt manufrs.	-	-	1	-	1	-
flock manufrs.	-	-	1	-	1	-
textile mills	-	-	1	1	-	-
knitted goods manufrs.	-	1	7	1	6	-
knitting mills & factories	-	-	6	2	4	-
hosiery mills	-	-	3	2	1	-
hosiery & stocking manufrs.	-	-	5	1	4	-
subtotals	-	*15*	*63*	*12*	*48*	*3*
FOOTWEAR						
boot & shoe manufrs.	-	5	-	-	-	-
boot & shoe factories	-	1	2	2	-	-
subtotals	-	*6*	*2*	*2*	-	-
ENGINEERING & METAL PRODUCTS						
coachbuilders	-	4	2	1	1	-
coach & motor body builders	-	-	3	2	-	1
coachbuilders & blacksmiths	-	-	2	-	2	-
engineers & toolmakers	-	3	13	1	10	2
stove & oven manufrs.	-	1	2	1	1	-
iron founders & patternmakers	-	4	6	4	2	-
steel founders	-	1	4	-	4	-
brass founders & finishers	-	2	12	8	4	-
sheet metal works & ironworks	-	1	5	3	1	1
electroplaters & plateware manufrs.	-	2	3	1	2	-
last, knife & die makers	-	2	-	-	-	-
horseshoe & nail works	-	1	1	-	1	-
spring manufrs.	-	-	2	1	1	-
wire fence & gate manufrs.	-	-	2	1	1	-
wire products manufrs.	-	-	1	-	1	-
safe makers & safe manufrs.	-	2	1	-	1	-
subtotals	-	*23*	*59*	*23*	*32*	*4*
NOXIOUS TRADES & ANIMAL BY-PRODUCTS						
soap & candle manufrs.	-	-	1	-	1	-
tanners & skin dressers	1	1	-	-	-	-
other leather goods (non footwear)	-	-	1	-	1	-
hair works	-	-	1	-	1	-
subtotals	*1*	*1*	*3*	-	*3*	-
TIMBER PRODUCTS & FURNITURE						
timber mills	-	2	4	1	3	-
sash factories & joinery works	-	-	6	2	3	1
wood block manufrs.	-	-	1	-	1	-
wicker furniture manufrs.	-	-	1	-	1	-
blind manufrs.	-	1	-	-	-	-
furniture factories (unspecified)	-	-	1	-	1	-
furniture manufrs. (unspecified)	-	-	19	6	10	3
box, case & trunk manufrs.	-	1	2	-	2	-
fire kindling manufrs.	-	1	-	-	-	-
subtotals	-	*5*	*34*	*9*	*21*	*4*

BRUNSWICK - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930		
	1870	1900	1930	E.BRUNS	BRUNS	W.BRUNS
FOOD, DRINKS & TOBACCO						
bakers	2	12	8	3	3	2
confectioners	-	15	142	35	78	29
pastrycooks	-	-	18	4	12	2
subtotals	*2*	*27*	*168*	*42*	*93*	*33*
CLOTHING & TEXTILES						
hatters	-	1	2	-	2	-
milliners	-	4	18	1	17	-
umbrella makers	-	2	1	-	1	-
tailors	3	9	28	4	23	1
dressmakers	-	22	21	5	12	4
costumiers	-	2	22	1	21	-
machine sewers & machinists	1	1	-	-	-	-
underclothing makers	-	1	-	-	-	-
shirt makers	-	2	1	-	1	-
woollen knitters	-	-	1	-	1	-
silk workers	-	-	1	1	-	-
fur & fabric dyers	-	1	9	2	7	-
furriers	-	2	8	1	7	-
art needlework manufrs.	-	-	3	-	3	-
subtotals	*4*	*47*	*115*	*15*	*95*	*5*
FOOTWEAR						
boot makers	9	33	4	2	2	-
shoemakers	1	1	-	-	-	-
boot repairers	-	-	61	14	33	14
subtotals	*10*	*34*	*65*	*16*	*35*	*14*
ENGINEERING & METAL PRODUCTS						
wheelwrights	3	2	-	-	-	-
coach painters & trimmers	-	1	-	-	-	-
motor body painters & trimmers	-	-	2	2	-	-
motor engineers & mechanics	-	-	8	3	4	1
blacksmiths	8	11	6	1	5	-
farriers & shoeing forges	-	2	3	1	1	1
tinsmiths & whitesmiths	-	1	1	1	-	-
locksmiths, gunsmiths & gun makers	1	4	1	-	1	-
manufg. jewellers & watchmakers	2	7	5	1	3	1
jewellers	-	-	6	-	6	-
cutlers	-	1	-	-	-	-
metal stampers, pressers, etc.	-	-	3	1	2	-
cycle builders & manufrs.	-	1	4	1	3	-
cycle repairers	-	-	1	-	1	-
subtotals	*14*	*30*	*40*	*11*	*26*	*3*
OTHER ANIMAL PRODUCTS						
saddlers	2	6	5	1	4	-
whip makers	1	-	-	-	-	-
subtotals	*3*	*6*	*5*	*1*	*4*	
TIMBER PRODUCTS & FURNITURE						
wood carvers & turners	-	2	2	1	1	-
chair makers	-	3	-	-	-	-
cabinet makers	-	1	2	1	1	-
upholsterers	-	-	5	1	4	-
subtotals	-	*6*	*9*	*3*	*6*	-

Table 13, continued: A Comparison of Factory & Non-Factory Manufacturing in Brunswick 1870, 1900 & 1930.

BRUNSWICK - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930		
	1870	1900	1930	E.BRUNS	BRUNS	W.BRUNS
BUILDING PRODUCTS						
brickworks	-	5	4	1	3	-
brickyards & brickfields	14	-	-	-	-	-
tile manufrs. & potteries	3	8	8	2	6	-
asbestos plaster manufacturers	-	1	9	2	5	2
plaster vent manufrs.	-	-	1	-	-	1
concrete works	-	-	1	-	1	-
ornamental masons works	-	1	1	-	1	-
subtotals	*17*	*15*	*24*	*5*	*16*	*3*
CHEMICALS						
oil & grease manufrs.	-	-	1	1	-	-
paint & varnish manufrs.	-	-	1	-	1	-
polish manufrs.	-	-	1	-	1	-
ink manufrs.	-	1	-	-	-	-
dye works	-	1	-	-	-	-
manufg. chemists	-	-	1	1	-	-
miscellaneous chemical manufrs.	-	-	1	-	1	-
subtotals	-	*2*	*5*	*2*	*3*	-
OTHER VEGETABLE PRODUCTS						
printers & bookbinders	3	4	5	2	2	1
paper bag & paper products manufrs.	-	1	2	1	1	-
rope & twine manufrs.	-	1	3	-	2	1
brush & broom manufrs.	-	-	1	-	1	-
subtotals	*3*	*6*	*11*	*3*	*6*	*2*
MISCELLANEOUS						
rubber goods manufrs.	-	-	1	1	-	-
toy factories	-	-	1	-	-	1
cement manufrs.	-	1	1	-	1	-
picture frame makers	-	2	-	-	-	-
soap manufrs.	-	-	1	-	1	-
mirror & glass manufrs., cutters, &c.	-	2	-	-	-	-
gas works	-	-	1	-	1	-
coke & gas works	-	2	-	-	-	-
other misc. & unspecified manufrs.	-	2	1	-	1	-
subtotals	-	*9*	*6*	*1*	*4*	*1*
TOTALS	22	89	225	60	144	21

BRUNSWICK - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930		
	1870	1900	1930	E.BRUNS	BRUNS	W.BRUNS
BUILDING PRODUCTS						
brickmakers	20					
potters	1					
subtotals	*21*					
CHEMICALS						
subtotals						
OTHER VEGETABLE PRODUCTS						
wicker & bamboo workers			1		1	
basket manufrs. & makers	-	2	1	1	-	-
cork cutters	-	2	-	-	-	-
subtotals	-	*4*	*2*	*1*	*1*	
MISCELLANEOUS						
subtotals						
TOTALS	54	154	404	89	260	55

Alex Sturrock's box factory had by this stage closed, but he had moved with the times again, opening a furniture factory further west along Brunswick Road. Part of the buildings from this later works appear to have survived, after subsequent alteration of the facade and reuse as the Beta Knitting Mills. Meanwhile, the box-making trade had been taken up by R.J. Henderson Boxes Pty. Ltd. in Barkly Street, a subsidiary of Henderson's Shirt Factory which fronted onto Brunswick Road behind them. Henderson's Boxes subsequently took over the former Brunswick Market building in Ballarat Street, where the Belleland Box Co. had been operating since the early 195Os.[1]

Clothing and textiles

The clothing industry commenced in Brunswick in the 1890s as an extension of the tailoring and millinery workshops which were commonplace in all suburbs and country towns. Two of the earliest true clothing factories were Stephens & Co in Grey St, which was established in 1895 and Henderson's Shirt Factory, nearby in Brunswick St. from about 1905. Robert Henderson was one of the pioneering clothing manufacturers in Brunswick, initially specialising in the manufacture of 'Fashion Shirts, Tennis, Harvards, Regattas, Oxford, Crimea, Flannels & Pyjamas and sole manufacturers of the 'Navy Shirt", he later expanded to produce a wide range of clothing. Henderson's also operated a separate box factory in Barkly St. to provide suitably individual packaging for his products.[2]

The clothing factories appear to have a separate origin from the twentieth century textile firms which came into being in the 1920s and '30s as a direct consequence of the activities of the Lincoln Mills in Coburg. Lincoln produced vast quantities of spun yarn, which it supplied to the trade, and actively encouraged local knitting, hosiery and weaving mills. The largest concentration of these were in Lygon St, particularly from the 1930s, and between Sydney Rd. and the Upfield railway line, both sites providing convenient transport and communication for both products and workers. Red Robin in Lygon St. made a niche for itself by concentrating on the hosiery trade, while the Peerless Silk mills concentrated on high quality, luxury fabrics, including the artificial silk fibre, Rayon.

Foundries and engineering works

After clothing, the engineering and metal products sector saw the most significant growth in Brunswick between 1900 and 1930. There were over 25 new foundries, engineering works, sheet metal works, spring factories and wire fence and gate manufacturers established. Two of the most significant developments were the rapid increase in brass foundries and brass finishing shops (particularly in Brunswick East), and the consolidation of the steel founding industry which saw Brunswick/Coburg become the most important centre for specialised steel castings in Victoria. Typical of the small brass foundries were W.R. Homes & Son, who operated in a small building adjacent to the Yorkshire Textile Mills in Inverness Street, during the 1920s.[3]

Davies and Beard established Coburg's second steel foundry in Brunswick Road East in about 1900, and by 1930 occupied all the land from nos 15 to 29. Next door was the Wilson Tree Puller Co. who presumably made stump grubbers.[4] John Dawson & Sons opened the third steel foundry, in Michael Street, opposite the Sheffield Crucible Steel Works. The Steel Company of Australia Pty. Ltd. opened what was Brunswick's fourth steel works at the corner of Firth & Howarth Street during the 1920s. The surviving building on this site, with their fancy poly-chrome brick facade, date from the 1930s. H. Williams & Co. established their forging works in Weston Street in about 1910, initially making nuts and bolts. Following the First World War, they won a contract to manufacture heavy anchor chains for the Commonwealth Government's merchant ship-building program and installed a large hydraulic chain making plant to perform the fabrication and testing.[5]

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[1] *Keeping Brunswick's Heritage*, vol.2, p.90.

[2] *Keeping Brunswick's Heritage; Sands and McDougall Directory of Victoria.*

[3] *Sands & McDougall Directories*

[4] *Sands & McDougall Directories*

[5] *The Australasian Ironmonger*, 01.10.1919, p.285.

By 1930, industry in Brunswick had a diverse base which included: building materials, engineering and metal works, clothing and textiles and consumer goods. Some unusual manufacturers such as Hoadley & McRobertson's Liquorice Factory were exceptions to this otherwise consistent pattern. Factories were also confined to specific zones within the municipality. The main industrial areas were located either side of the Upfield railway line with the brickworks and potteries concentrated at the southern end, particularly between Victoria and Dawson Sts. and on Barkly St. east of the railway. Clothing and footwear factories were spread along the length of Sydney Rd. The influence of the twin locational factors of the railway and Sydney Road as the primary access point to the area can be clearly seen in the drop off in numbers of factories with distance. *(see map 9)*. From about 1930 the proliferation of small and medium textile firms along Lygon St. marked a greater decentralisation of industry in Brunswick.

Table 14: Analysis of Surviving Factory Buildings in Brunswick and Comparison with Historical Distribution by Factory Type.
compiled from Sands & McDougall's Directory of Victoria for 1930 & Summary List of Sites Examined

MANUFACTURING SECTOR	Sands & McDougall's Directory of Victoria - 1930		Factory Study - Surviving Factory Buildings Recorded in Brunswick		
	Number of Factories in Brunswick	Proportion of Total	Number Built pre 1931	Proportion of pre 1931 Total	Number Built post 1930
Food & Drinks	18	8.0%	3	7.5%	1
Clothing & Textiles	63	28.0%	18	45.0%	8
Footwear	2	0.9%	1	2.5%	-
Engineering & Metal Products	59	26.2%	8	20.0%	2
Noxious Trades & Animal By-products	3	1.3%	-	0.0%	-
Timber Products & Furniture	34	15.1%	2	5.0%	-
Building Materials	24	10.8%	2	5.0%	-
Chemicals	5	2.2%	1	2.5%	-
Other Vegetable Products	11	4.8%	3	7.5%	-
Miscellaneous Products	6	2.7%	2	5.0%	-
TOTALS	225	100 %	40	100 %	11

NORTHCOTE

Northcote's early manufacturing and industrial development was shaped as much by the suburb's topography as by its location. The hilly terrain offered fewer extensive flat sites than Brunswick or Coburg, while the Yarra River, Merri Creek and Darebin Creek for many years formed a natural barrier on three sides, restricting the movement of goods and people into and out of the suburb. In addition, poor drainage caused frequent flooding of the low lying flats south of Westgarth Street and east of Victoria Street; a problem that was not solved until well into the 20th century.

The first government land sales in the Northcote district commenced in October 1839, but the size of the allotments (140-280 acres) were obviously intended for farming. The land to the south of Westgarth Street, bounded by the loop in Merri Creek, was reserved for a township site in the original survey but was not sold until 1850. High Street was also set out in the original survey on its present allignment and soon became the major transport route to farms in the Plenty Valley (at this time it was called Plenty Road). Scattered shops and houses began to appear along this route during the 1840s and '50s. But away from the road, the only significant development was the construction of a number of grand houses for some of Melbourne's more wealthy professionals and merchants.[1]

Although a timber bridge was built over Merri Creek, at the bottom end of High Street, in the late 1840s, a steep incline between Westgarth and Clarke Streets (known as Rucker's Hill) proved to be a major restriction to traffic passing northwards and it was not until 1860, that the local contractor G.H. Plant was employed to cut down the hill and build an embankment reducing the grade.[2]

Between 1855 and 1880, there were no further Government land sales in Northcote and no major private land subdivisions so both industrial and residential growth was accordingly very stagnant.[3] In the mid 1860s, the Perry Brothers built a jam and preserves factory near their orchard on the Merri Creek flats. This was probably the first proper factory in Northcote, but it appears to have been fairly short-lived.[4]

In 1870, the Sands and McDougall Directory listed only two factories in Northcote: Henry Herne's bacon-curing works and Mrs Herbert's Crimean shirt factory. Both were situated on High Street, but there exact position was not given. In addition, a handful of trades people, such as blacksmiths, bakers and bootmakers were already established on High Street and were probably engaged in some form of manufacturing activities *(table 17)*

In October 1870, the Epping Road District, which included Northcote and Preston, was amalgamated with several other road districts to the north, to form the Shire of Darebin. This enormous shire covered an area stretching as far north as Morang and Woodstock and proved to be too large to be effectively managed, so the following year Northcote and Preston were split off, forming the Shire of Jika Jika.[5]

For the next 12 years, Northcote and Preston were managed by the same shire council and the *Statistical Registers* only listed combined manufacturing statistics for the two suburbs, so it is appropriate to consider manufacturing development in the two suburbs together for these years.

At the beginning of 1871, the *Statistical Register* recorded 17 factories in the Jika Jika Shire *(Table 15)*. The majority of these were brickworks and noxious industries, principally tanneries and bacon-curing works. Preston had, since 1862, been home to noxious industries, being well outside the closely settled suburbs where there were few neighbours to complain about any offensive smells or unhygienic effluent. Northcote too, had attracted its share of undesirable industries by

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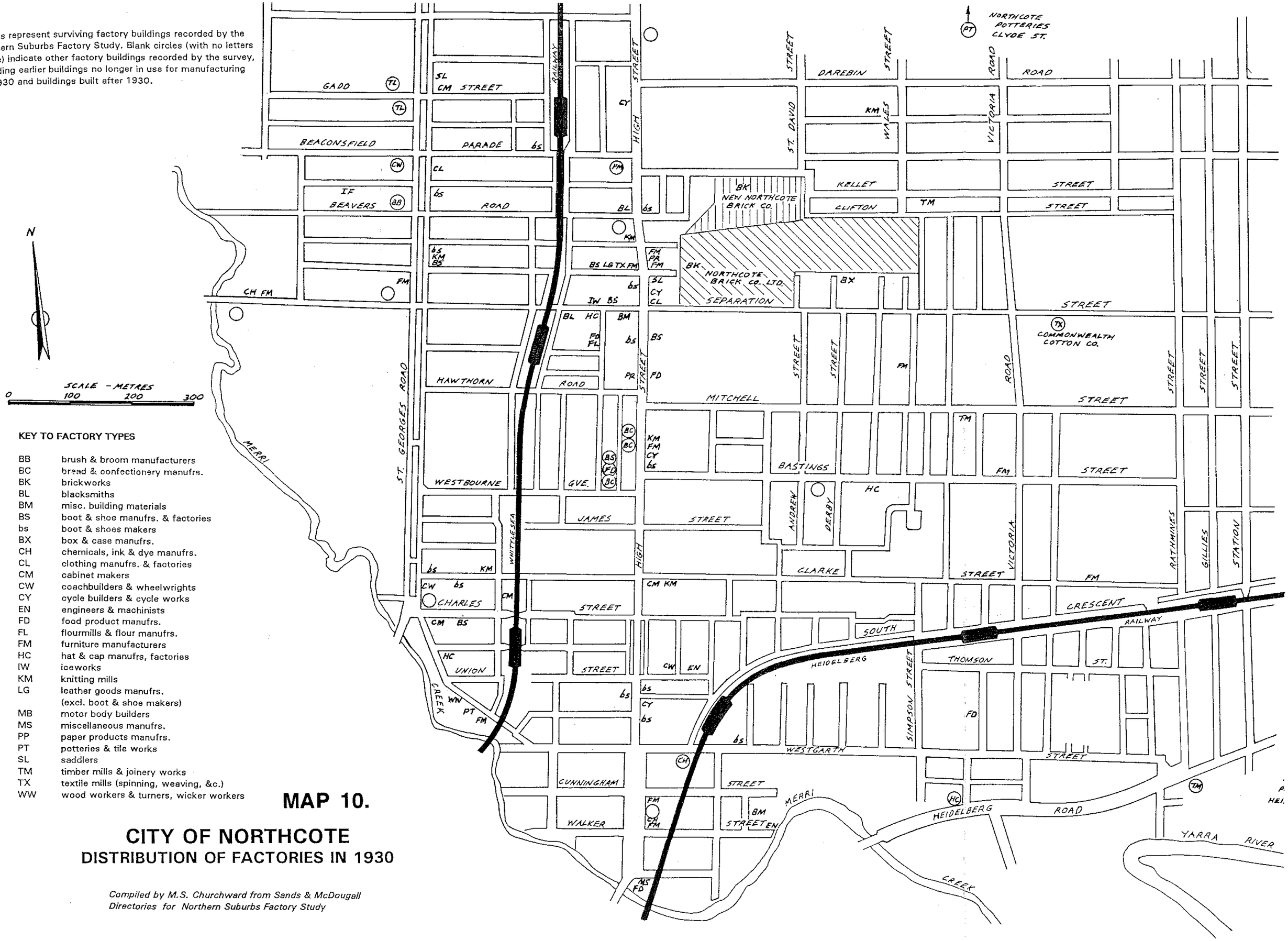
[1] W.G. Swift, *History of Northcote,* 1928, pp.5-6; Northcote Urban Conservation Study 1982, p.5.
[2] Swift. p.12.
[3] Swift, p.26.
[4] *Northcote Urban Conservation Study*, 1982, p.6
[5] Swift, p.32.

Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.



KEY TO FACTORY TYPES

BB	brush & broom manufacturers
BC	bread & confectionery manufrs.
BK	brickworks
BL	blacksmiths
BM	misc. building materials
BS	boot & shoe manufrs. & factories
bs	boot & shoes makers
BX	box & case manufrs.
CH	chemicals, ink & dye manufrs.
CL	clothing manufrs. & factories
CM	cabinet makers
CW	coachbuilders & wheelwrights
CY	cycle builders & cycle works
EN	engineers & machinists
FD	food product manufrs.
FL	flourmills & flour manufrs.
FM	furniture manufacturers
HC	hat & cap manufrs, factories
IW	iceworks
KM	knitting mills
LG	leather goods manufrs. (excl. boot & shoe makers)
MB	motor body builders
MS	miscellaneous manufrs.
PP	paper products manufrs.
PT	potteries & tile works
SL	saddlers
TM	timber mills & joinery works
TX	textile mills (spinning, weaving, &c.)
WW	wood workers & turners, wicker workers

MAP 10.

CITY OF NORTHCOTE
DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study

this time, though these were largely abattoirs and boiling down works rather than tanneries.[1] In about 1874, William Lawrence established a small dyeworks and an oil cloth factory in Cunningham Street, which also produced some complaints from local residents, but after the oil cloth factory closed he was able to continue his operations unhindered.[2]

Several piggeries and boiling down works in Clarke Street, Northcote were visited by the Noxious Trades Commission of 1870-71 and in May 1878, they again came under unfavourable attention in the Melbourne daily papers.[3]

In 1880, the Reverend Duncan Fraser, together with other concerned local citizens, formed the Northcote Health League to campaign for the removal of offensive and unsanitary industries from their suburb. The resulting publicity encouraged the Jika Shire Council to act against the worst offenders, but the Council was on the whole unsympathetic to the Health League's cause and lacked their enthusiasm to see the problem brought to a conclusion. This was hardly surprising, since some of the councillors themselves were amongst the culprits. One premises in High Street, which King, Smith and Kenihan were leasing as a slaughter-yard, was owned by the councillor and prominent local citizen, George Plant.[4]

In 1882, the Health League lent its weight behind a move to petition the Government for a separation of Northcote from the Jika Shire. The initiative was successful and on 25 May 1883, the Borough of Northcote was proclaimed in its own right. The new council moved quickly to solve the problem by closing down two large slaughter-yards in High Street and Chinnick's boiling-down works in Clarke Street, as soon as their existing leases expired. The Health League considering its job done, cheerfully voted itself out of existence .[5]

In his 1928 history of the municipality, Northcote's first official historian, W.G. Swift, argued that it was the ascendancy of the brickmaking industry that finally settled the question of whether Northcote would become an aristocratic suburb like Toorak or a working class industrial suburb like its southern neighbours.[6] Like Brunswick, much of Northcote and Preston had the natural advantage of having large beds of sedimentary clays and mudstones laying just below the surface which provided ideal material for making bricks. Brickmaking in Northcote probably began in the 1840s when the first settlement commenced. According to Swift, it was not uncommon, during the early years, for builders to open up a small claypit next to building sites and produce bricks right on the spot.[7] These temporary brickyards could hardly be described as factories (the bricks being made entirely in the open with hand labour only), but they helped establish a local brickmaking industry that developed more permanent brickyards as settlement became denser.

By 1871, when Jika Jika was proclaimed as a separate municipality, there were five brickyards operating in the shire, with a combined output of 1.3 million bricks a year. Probably three of these works were in Northcote and the other two in Preston.[8] All five brickyards were by then using horse-powered machinery to crush and prepare the clay material, but moulding of the bricks was still done entirely by hand. Together the five bricyards had £1,585 invested in plant and buildings and were employing only 30 men, so the industry was still comparatively small (less than one tenth the size of that in Brunswick). Jika's first steam-powered brickworks was established in late 1873 by two brothers, Seymour and Charles d'Oyley Groom. They brought nine acres of land covering extensive clay deposits to the east of the Carter's Arms Hotel on the corner of Separation and High Streets, where John Roberts had begun making handmade bricks in an open-fired kiln several years previously.

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[1] *Northcote Urban Conservation Study*, p.8; Swift, p. 7
[2] Andrew Lemon, *The Northcote Side of the River*, 1983, p.71
[3] Lemon, p.70; Progress Report of the Royal Commission on Noxious Trades..., *Victorian Parliamentary Papers*, 1870, 2nd session, No.22.
[4] Lemon, p.74
[5] Lemon, p.74-6 & 79-81.
[6] Swift, p.15.
[7] Swift, p.16.
[8] *Statistical Reglster of Victoria*, 1871, Production, p.37.

Table 15: Manufacturing in Northcote 1870-1976.

compiled from The Statistical Register of Victoria, 1870-1910;
Victorian Year Book, 1935-1950 & Manufacturing in Melbourne,
Report of the Technical Advisory Committee, M.M.B.W., 1979, p.39.

Municipality	Year	Number of Manuf.ing Works Recorded	Number of Steam Powered Works	Number of Gas Engine Powered Works	Number of Horse Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees[δ]	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £
Darebin Shire[1]	1870-71	13[φ]	1	-	4	18	62	2,394	1,730
Jika Jika Shire[2]	1871-72	16[φ]	4	-	5	22	75	1,785	2,898
Jika Jika Shire[2]	1875-76	14[∞]	6	-	3	21	90	3,885	10,343
Jika Jika Shire[2]	1880-81	15[φ]	5	-	4	90	123	6,610	10,400
Northcote Borough[3]	1883-84	4	2	-	1	49	89	4,950	9,930
Northcote Town	1890-91	16	10	-	-	465	583	57,615	58,550
Northcote Town	1896	8	6	-	-	334	342	25,340	30,830
Northcote Town	1900	9	5	1	-	242	232	14,590	15,170
Northcote Town	1910	28					596		
Northcote City	1935-36	115					1,528	137,684	295,787[#]
Northcote City	1940-41	119					1,743	203,070	312,259[#]
Northcote City	1945-46	140					2,158	557,214	441,198[#]
Northcote City	1950-51	213					2,785	489,142	606,632[#]
Northcote City	1971						9,340		
Northcote City	1976						8,348		

NOTES: [1] Darebin Shire in 1870 included Northcote, Preston and a large area to the north taking in the rural districts of Epping, Morang & Woodstock - see *Map 7*.
[2] Jika Jika Shire, as proclaimed on 8 Nov. 1871, included the area which later became the municipalities of Preston and Northcote - see *Map 8* for boundary details.
[3] Northcote was separated from the Shire of Jika Jika on 25 May 1883 to form a separate borough in its own right.
[φ] All figures for these years exclude details relating to one flourmill for which separate returns were not published.
[∞] All figures for this year exclude details relating to one flourmill & one tannery for which separate returns were not published.
[#] Includes value of both land & buildings.
[δ] All employment figures exclude outworkers.

The Groom brothers formed the Northcote Patent Brick Company and erected a permanent kiln on the site and mechanical brick presses operated by a steam engine. Within a year, brick production in the Jika Jika Shire had doubled, whilst the average output per employee rose from 850 to 1,600 bricks a week *(table 16)*.[1] In 1887, the Groom Brothers sold their interest in the Northcote works, and in 1882 it was floated as a public company by a group of Melbourne business men as the Northcote Brick Company Ltd., with a nominal capital of £50,000.[2] A consulting geologist who inspected the claypits at this time confidently predicted that the beds then being worked would have 'no limit to their extension in depth'. He estimated that the 40 ft. deep excavation had up to that time yielded 16 million bricks.[3] Following the example of the Hoffman Patent Brick Company in Brunswick, the new company installed a Hoffman kiln to lower production costs.

By the time the Borough of Northcote was proclaimed, in 1883, the Northcote Brick Co. had increased its output to over seven million bricks a year and won pride-of-place as Northcote's largest employer. As the Melbourne land boom gathered pace, orders and profits grew . In 1886, two more Hoffman kilns were built, followed by a fourth and fifth in 1887-8. At the same time a new larger pit was opened up on the east side of the kilns. When construction of the Whittlesea Railway line through Northcote and Preston commenced in 1888, the company built its own railway siding across High Street to make coal deliveries easier.[4]

By the 1880s the Borough of Northcote was the second largest municipality for brick production in Victoria and the Northcote Brick Co. was rivalled in size only by Hoffman's in Brunswick. In 1886, the two rival brickmaking companies came to a pricing agreement to help secure both companies' profits by removing undue competition. In June 1888, Hoffman's suggested that the two companies should amalgamate, but after some initial discussions, the Northcote Company withdrew from the proposal. [5]

Capitalising on the success of the Northcote Brick Co., another syndicate brought a smaller area of adjoining land fronting on to Dennis Street and floated the New Northcote Brick Company Ltd. Alexander Marshall, formerly of Hoffman's in Brunswick, was appointed as manager and by 1888 their first kiln was in production.[6] The two Northcote Brick Companies reached their peak in 1889, when 57.5 million bricks were produced by a workforce of 536, but by the following year, the first ominous signs of collapse in the Melbourne building boom were beginning to show and the Maritime Strike interrupted coal supply shutting down both works for several months with a corresponding drop in production *(table 16)*.

During the late 1880s, other sectors of manufacturing had also begun to show their first real development in Northcote. By the end of 1890, the *Statistical Register* listed 14 other factories employing 163 workers in Northcote apart from the brickworks. Eight of these factories were steam powered.[7] Among these were F. Roberts, who had opened a boot factory employing 45 workers, and James Bennett , who had moved from Carlton to establish a furniture factory in High Street, pioneering what would later be one of Northcote's major manufacturing industries.[8] Also in High Street, near the corner of Dennis Street, the McLean Brothers had established a tannery by 1885.[9] In addition to these new factories, Lawrence's Dye Works in Cunningham Street, and King, Smith & Kenihan's bacon works in Bastings Street had continued to expand.

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[1] *Statistical Register of Victoria*, 1874, Production, p.45; Lemon, p.45; Swift, p.72.
[2] T.G. Parsons, *Some Aspects of the Development of Manufacturing in Melbourne, 1970-1890*, pp. 435-6; Lemon, pp.47 & 82.
[3] Lemon, pp.82-3: Compare this figure with the output of the Hoffman brickworks in Brunswick which produced 120 million bricks between 1870 & 1879.
[4] Lemon, p.106.
[5] Parsons, pp.433-4.
[6] A. Sutherland, Vol 2. p.646, Lemon, pp.83-4.
[7] *Statistical Register of Victoria*, 1890, Production.
[8] Lemon, p.105; Sutherland, Vol 2, p.593.
[9] Swift, p.63

Table 16: Brickworks & Potteries in Northcote 1870-1900.

compiled from The Statistical Register of Victoria, 1870-1900.

Municipality	Year	Total Number of Works	Number of Steam Powered Works	Number of Horse Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings £	Number of Bricks Produced	Value of Pottery Produced £
Darebin Shire[1]	1870-71	6	-	3	3	19	384	100	594,000	500
Jika Jika Shire[2]	1871-72	5	-	5	6	30	695	890	1,328,000	500
Jika Jika Shire[2]	1880-81	5	1	4	50	47	4,180	5,350	3,650,000	2,900
Northcote Borough[2]	1883-84	2	1	1	46	67	4,050	9,030	7,850,000	-
Northcote Borough	1889-90	2	2	-	360	536	38,094	48,600	58,286,000	-
Northcote Town	1890-91	2	2	-	356	420	45,300	51,500	47,772,600	-
Northcote Town	1894-95	2	2	-	200	178	22,000	25,000	20,400,000	-
Northcote Town	1896	2	2	-	174	161	19,610	25,400	17,653,100	-
Northcote Town	1900	1#	1	-						

NOTES: [1] Darebin Shire in 1870 included both Northcote & Preston brickworks.
[2] Jika Jika Shire, proclaimed on 8 Nov. 1871, included both Preston and Northcote brickworks until 25 May 1883 when Northcote separated from the shire to form a borough in its own right.
No separate details were published on this brickworks.

At the height of this boom, in February 1890, the Clifton Hill, Northcote and Preston cable tramway opened. This tramway, which was the only cable tram route in Melbourne to be built by a private company, commenced at the terminus of the Melbourne Tramway & Omnibus Company's Clifton Hill line at the bottom end of High Street, just across Merri Creek, and ran straight up High Street to Dundas Street. The Cable tram provided an immediate boost to development along High Street and to the whole of Northcote and South Preston more generally.[1] The construction of the tramway brought with it immediate benefits for other traffic using High Street, with the widening of the Merri Creek Bridge and the regrading and widening of the Ruckers Hill embankment, at which time the current retaining walls were built. This work was partially paid for by the Northcote Council.[2]

Despite the boom of the late 1880s, Northcote's manufacturing development by 1890, was still well behind that of Brunswick, Coburg or Preston and it was to suffer heavily during the depression of the 1890s. Between 1890 and 1900, the number of factories operating in Northcote and employment in manufacturing fell by more than half *(table 15)*.

In July 1891, the Northcote Brick Company was forced to stop production in order to reduce its stockpile of unsold bricks, and by September, the New Northcote Brick Co. had closed. The kilns were restarted in April 1892, but further stoppages occurred over the next few years and neither brickworks operated at its full capacity. In April 1894, the Northcote Brick Co. announced it had finally sold its stockpile and in September a large contract was received for two million bricks, but the combined output of the two brickworks for 1894 was only 20.4 million bricks, well down on the peak production of 1889-90 *(table 16)*.[3]

In 1896, the Northcote and New Northcote Brick Companies joined forces with three of their main rivals, Charles Butler & Son and the Hoffman Patent Steam Brick Co. Ltd., in Brunswick, and Fritsch, Holzer & Co., in Hawthorn, to form the Co-operative Brick Company Ltd.. Each company retained its independent management, but the co-operative provided some stability in the industry by setting prices and production quotas for each works and providing a profit sharing arrangement between the partner companies.[4]

The one manufacturing sector that did see some growth in Northcote during the 1890s was tanning. McLean Brothers tannery was extended in 1895, and they were joined by new tanneries opened by Stafford MacKenzie, in Green Street, in 1893 and Joshua Pitt, in Sladin Street (now Gadd Street), in 1895. By 1900, there were five tanneries operating in Northcote. Though this equalled the number of tanneries then operating in Preston, the tanning industry in Preston was operating on a much larger scale. Only two of the Northcote tanneries were using steam-powered machinery in 1900, and only 77 tan pits were in use, compared to 261 in Preston. Employment was also less than half that of the Preston tanneries and output per worker in finished hides and skins was only 75 % of that in Preston *(table 20)*. MacKenzie's business was typical of the Northcote tanneries at this stage, with 16 employees and a turnover of £20 per week.[5]

The first decade of the 20th century saw prosperity return to Northcote's manufacturing industries. Between 1900 and 1910, both the number of factories and factory employment in the municipality trebled. In 1900, the Northcote Council made a bold move to revive confidence in the district by purchasing the cable tramway which had lain idle since 1897. The last operator had so neglected maintenance work, that some £12,285 had to be spent on track and equipment repairs before the line could be got running again. When placing his casting vote in favour of the motion to approve the purchase, the Mayor of Northcote argued that '...for over-built Fitzroy and Collingwood, Northcote was the natural outlet'.[6] He was probably referring more to the need for residential housing than space for new factories, but the comment was equally valid in either context .

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[1] J.D. Keating, *Mind the Curve! A History of the Cable Trams*, M.U.P., 1970, ch.10
[2] Lemon, pp.100-1; Swift, p.75.
[3] Lemon, pp.112-3, 130; *Northcote Urban Conservation Study*, p.11
[4] T.G. Parsons, p.61; Lemon, p.130.
[5] *Australian Leather Journal*, 15.07.1902, p.188.
[6] Swift, pp.78-9.

Table 17: A Comparison of Factory & Non-Factory Manufacturing in Northcote 1870, 1900 & 1930.
compiled from the Sands & McDougall Directories.

NORTHCOTE - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930		
	1870	1900	1930	N'COTE	F'FIELD	TH'BURY
FOOD, DRINKS & TOBACCO						
vinegar manufrs.	-	-	2	2	-	-
flour manufrs.	-	-	1	1	-	-
confectionery manufrs.	-	-	4	3	1	-
whoiesale bakers & bread manufg.co.s	-	-	2	2	-	-
bacon & ham curers	1	2	-	-	-	-
small goods manufrs.	-	1	1	1	-	-
subtotals	*1*	*3*	*10*	*9*	*1*	-
CLOTHING						
hat manufrs.	-	1	3	3	-	-
tie manufrs.	-	-	1	1	-	-
mantle manufrs.	-	-	1	1	-	-
shirt factories	1	-	-	-	-	-
white work manufrs.	-	-	2	-	-	2
clothing manufrs. (unspecified)	-	-	2	1	-	1
knitted goods manufrs.	-	-	8	5	1	2
knitting mills & factories	-	-	2	2	-	-
tweed manufrs.	-	-	1	1	-	-
textile mills	-	-	1	1	-	-
art needlework manufrs.	-	-	1	-	-	1
subtotals	*1*	*1*	*22*	*15*	*1*	*6*
FOOTWEAR						
boot & shoe manufrs.	-	1	2	2	-	-
boot factory	-	1	-	-	-	-
slipper manufrs.	-	-	3	3	-	-
children's shoe manufrs.	-	-	1	1	-	-
subtotals	-	*2*	*6*	*6*	-	-
ENGINEERING & METAL PRODUCTS						
coach builders	-	2	3	1	-	2
carriage works	-	1	-	-	-	-
coach & motor body builders	-	-	2	1	1	-
sulky builders	-	-	1	1	-	-
saddle-tree makers	-	1	1	1	-	-
engineers	-	1	4	1	-	3
tool & gauge manufrs.	-	-	1	1	-	-
metal workers	-	-	1	-	-	1
radiator manufr.	-	-	1	-	-	1
cycle builders & manufrs.	-	1	6	4	1	1
cycle works	-	-	1	-	1	-
subtotals	-	*6*	*21*	*10*	*3*	*8*
NOXIOUS TRADES & ANIMAL BY-PRODUCTS						
tanneries	-	2	-	-	-	-
tanners & curriers	-	2	2	1	-	1
cricket ball manufrs.	-	-	1	1	-	-
subtotals	-	*4*	*3*	*2*	-	*1*
TIMBER PRODUCTS & FURNITURE						
timber mills	-	1	1	1	-	-
joinery works	-	-	1	1	-	-
door & sash manufrs.	-	-	1	1	-	-
chair factories	-	1	-	-	-	-
furniture manufrs. (unspecified)	-	-	12	9	1	2
picture frame makers	-	1	1	1	-	-
box & case manufrs.	-	-	2	1	1	-
subtotals	-	*3*	*18*	*14*	*2*	*2*

NORTHCOTE - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 193		
	1870	1900	1930	N'COTE	F'FIELD	TH'BURY
FOOD, DRINKS & TOBACCO						
bakers	1	2	10	7	1	
confectioners	-	6	106	57	10	
pastrycooks	-	-	21	10	2	
subtotals	*1*	*8*	*137*	*74*	*13*	
CLOTHING						
hatters	-	-	1	1	-	
milliners	-	-	15	10	1	
tailors	-	3	19	12	-	
dressmakers	-	6	19	11	3	
costumiers	-	1	10	4	3	
wool knitters	-	-	1	-	1	
fur & fabric dyers	-	1	6	4	1	
furriers	-	-	3	3	-	
subtotals	-	*11*	*74*	*45*	*9*	
FOOTWEAR						
boot makers	3	15	35	16	6	
boot repairers	-	1	20	10	3	
subtotals	*3*	*16*	*55*	*26*	*9*	
	1870	1900	1930	N'COTE	F'FIELD	TH'BURY
ENGINEERING & METAL PRODUCTS						
motor engineers	-	-	6	4	1	
blacksmiths	2	4	2	2	-	
farriers & shoeing forges	-	1	3	3	-	
watchmakers	-	3	4	1	1	
jewellers	-	1	3	3	-	
engravers	-	1	-	-	-	
stove repairers	-	-	1	-	-	
electrical engineers	-	-	2	1	-	
cycle repairers	-	-	1	1	-	
subtotals	*2*	*10*	*22*	*15*	*2*	
OTHER ANIMAL-BASED PRODUCTS						
saddlers	1	2	4	2	-	
harness makers	-	-	1	-	1	
subtotals	*1*	*2*	*5*	*2*	*1*	
FURNITURE						
wood workers	-	-	1	1	-	
wood carvers & turners	-	1	-	-	-	
chair makers	-	-	1	1	-	
cabinet makers	-	-	5	4	1	
upholsterers	-	-	4	2	1	
french polishers	-	1	-	-	-	
subtotals	-	*2*	*11*	*8*	*2*	

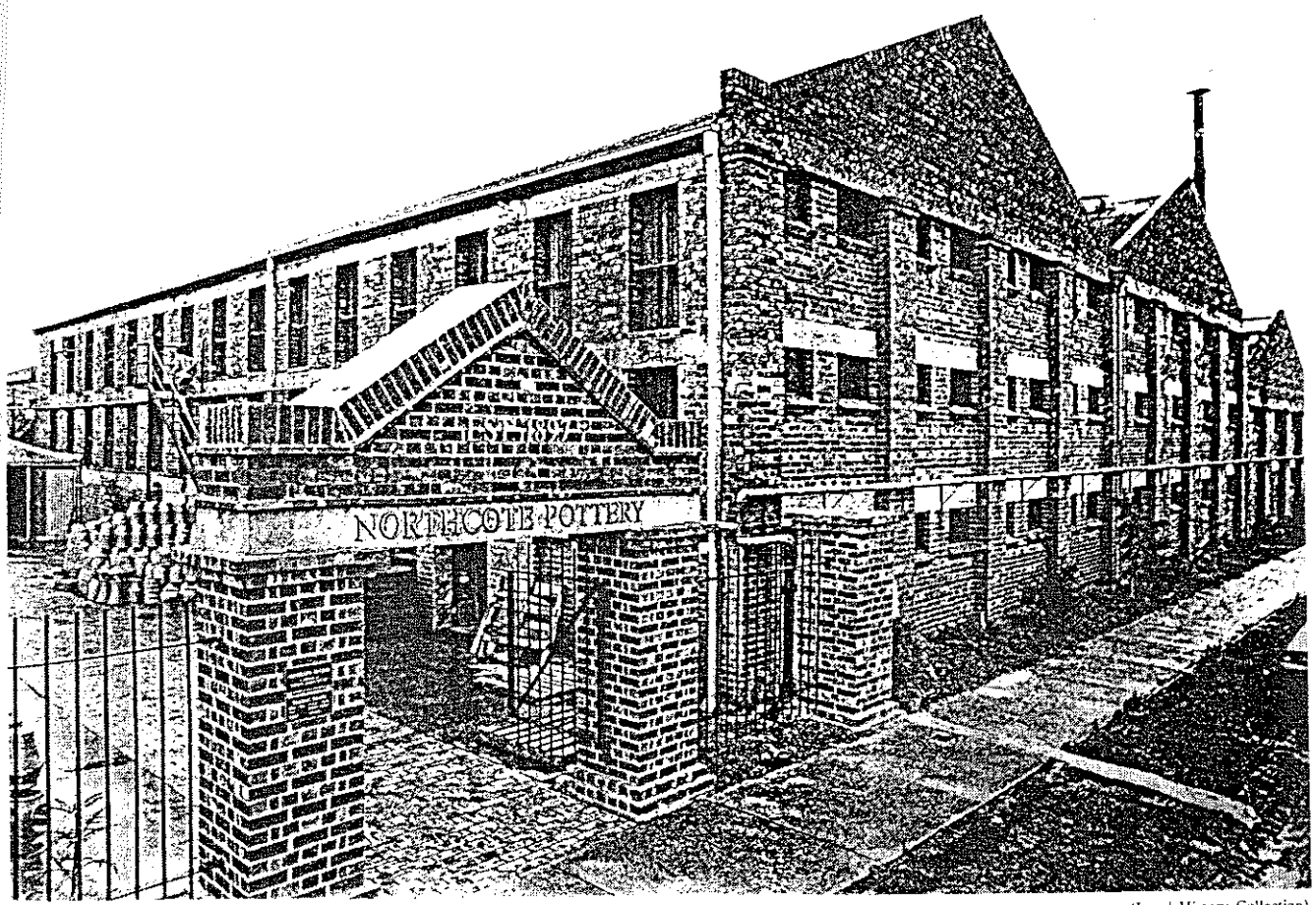
17, continued: A Comparison of Factory & Non-Factory Manufacturing in Northcote 1870, 1900 & 1930.

NORTHCOTE - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930		
	1870	1900	1930	N'COTE	F'FIELD	TH'BURY
PRODUCTS	-	2	2	2	-	-
works	-	-	1	-	-	1
tile works	-	-	2	1	-	1
manufrs.	-	1	2	1	-	1
works	-	-	2	-	-	2
plaster manufacturers	-	-	2	2	-	-
works	-	-	1	1	-	-
builders & modellers	-	-	3	1	2	-
crushers						
	-	*3*	*15*	*8*	*2*	*5*
	-	-	2	1	-	1
manufrs.	-	-	1	1	-	-
chemists	-	1	1	1	-	-
works						
	-	*1*	*4*	*3*	-	*1*
ETABLE PRODUCTS	-	1	6	3	1	2
works	-	-	1	1	-	-
broom manufrs.	-	1	-	-	-	-
works						
	-	*2*	*7*	*4*	*1*	*2*
LANEOUS	-	-	1	1	-	-
manufrs.	-	-	1	1	-	-
works						
unspecified factories	-	-	1	1	-	-
	-	-	*3*	*3*	-	-
	2	25	109	74	10	25

NORTHCOTE - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930		
	1870	1900	1930	N'COTE	F'FIELD	TH'BURY
BUILDING PRODUCTS						
brickmakers	-	1	-	-	-	-
	-	*1*	-	-	-	-
CHEMICALS						
	-	-	-	-	-	-
OTHER VEGETABLE-BASED PRODUCTS						
compositors	1	-	-	-	-	-
wicker workers	-	-	3	3	-	-
basket makers	-	1	-	-	-	-
	1	*1*	*3*	*3*	-	-
MISCELLANEOUS						
	-	-	-	-	-	-
TOTALS	8	51	307	173	36	98



The Northcote Tile & Pottery Co.

(Local History Collection)
(Photograph kindly provided by Northcote Pottery)

As confidence returned, new factories were established such as the Exhibition Boot Company, in Westgarth Street, which was one of the first boot factories in Melbourne to have a modern single level layout. This design was claimed to '...allow...better supervision, and saving haulage of raw material and unfinished goods from floor to floor.' The factory covered half an acre with a floor space of 16,000 square feet and was fitted out with '...the latest American 'Simplex' gas engine made by Coulson & Co. of Melbourne. Like the Newer boot factories in Fitzroy and Collingwood, the Exhibition Boot Co. had its own chain of dedicated shoe stores in twelve city and suburban locations and four country towns.[1]

Existing factories also expanded. The Cunningham Street dyeworks expanded rapidly after Robert Lawrence a nephew of the founder William Lawrence, took over the management in 1902.[2] Joshua Pitt expanded his tannery, building a new two storey wing measuring 35 ft. by 50 ft., at a cost of £350 and installing new machinery. By 1902, he had 30 employees producing calf and kip leathers and tan, glace, satin and Levant hides for the Australian and New Zealand markets. He also claimed to be the only '...specialist producer [of rolled-split] in the trade'. In later years he was a major manufacturer of leather transmission belts.[3]

In 1904, William Smith revived the bacon factory in Bastings Street, in which he had been a former partner. After being a member of the firm King, Smith & Kenihan for 15 years, Smith had left in 1894 to try his luck on the Western Australian goldfields. After his return, he went into partnership with a son and bought the iceworks in Westgarth Street, Fitzroy. From there they established themselves as smallgoods manufacturers in 1901, and re-entered the Northcote bacon-curing trade. Meanwhile, King had also left to establish his own bacon works at 254 High Street and the original firm closed down shortly after 1900.[4]

With the development of the clothing and footwear industry, there was a significant growth in the employment of females. After reaching an earlier peak of 43 in 1894, the number of women employed in Northcote's factories dropped to only 18 in 1899, but had risen again to 171 by 1910.[5]

In 1900, the Northcote Brick Company installed an electric lighting plant which enabled the claypits to continue operating at night, and in 1904, £6,000 was spent on a new steam plant. The brickmaking industry, however, was taking a long time to recover from the 1890s depression. The New Northcote Company's works did not reopen until 1905, after being closed since the late 1890s, and even then the two works were only employing 120 men.[6] In 1912, these companies were joined by the Glen Iris Brickworks in St. Georges Road, Thornbury, which was established with assistance from the Victorian Government after signing an agreement to supply bricks at a special rate for Government building projects.[7]

Between the First World War and the 1930s, manufacturing in Northcote trebled in size. During the 1920s, Northcote was able to again overtake Preston and Coburg, establishing itself as a significant industrial suburb. By 1930, the *Sands and McDougall Directory* listed 109 factories in Northcote, and five years later, despite another recession, the *Statistical Register* recorded 115 factories employing just over 1,500 people *(tables 15 & 17)*. Manufacturing in Northcote had become significantly more diverse with strong growth in all sectors, whilst significant concentrations were developing in clothing (notably knitwear manufacturers), engineering & metal products, timber products (notably furniture) and building products (including tile works, potteries, cement works and plaster manufacturers). In contrast to both neighbouring Preston and Coburg, factory development in Northcote during these years was more evenly spread throughout the municipality, and more importantly, a greater number of factory buildings from this important period have survived.

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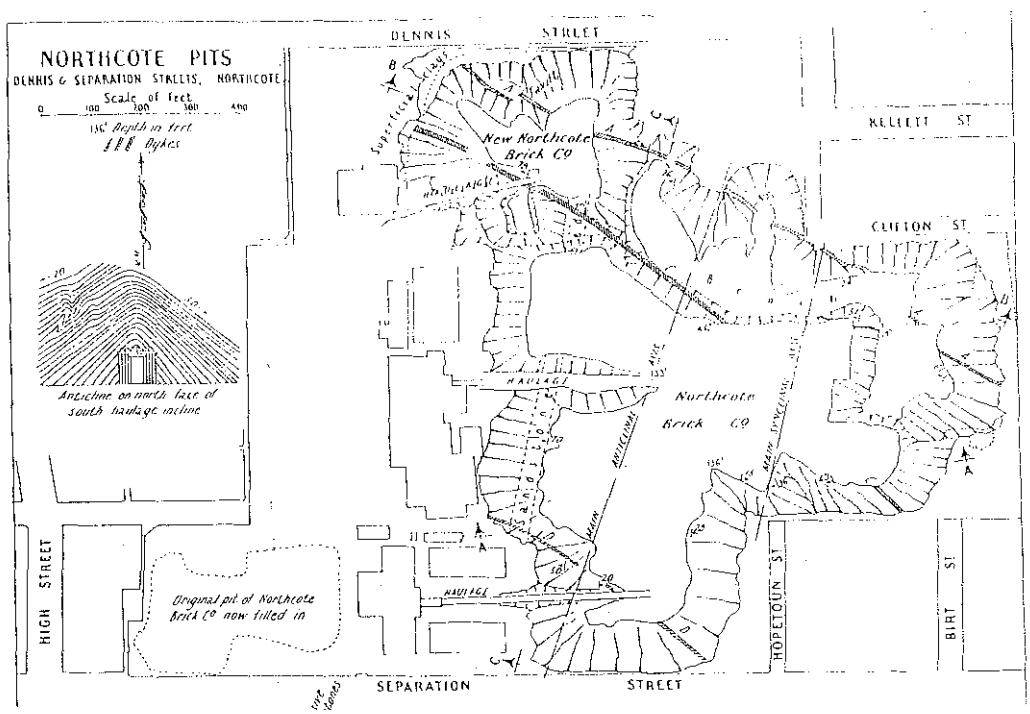
[1] *Australian Leather Journal*, 15.8.1902, pp.222-4.
[2] Lemon, p.71.
[3] *Australian Leather Journal*, 15.12.1902, p.498.
[4] *Sands & McDougall Directories*, 1900; Sutherland, vol 2, p.697; Smith, 1904, vol.2, p196; Lemon, p.140.
[5] Statistical Registers of Victoria, Production, 1910, p.158; Lemon, p.133.
[6] Lemon, pp.140 & 147.

One of the most significant developments in the Northcote engineering industry during this period, was the founding of the Sutton Tool and Guage Company in 1917. The founder, William Sutton, was born and trained in England and played a leading role in the development of Wolseley motor car there during the early 1900s. When he arrived in Australia in 1911, he brought with him a knowledge and skill in precision toolmaking that was to revolutionise post war manufacturing development in Australia. Sutton's first Northcote factory was started with a capital of just £400, in a converted stable in Plant Street. His initial plant consisted of a single lathe, a small grinding machine with a milling attachment and a furnace. Heat treated steel was quenched in the family bath tub. By 1925, the original factory had expanded four-fold, and in 1933, Sutton's moved to a larger factory in High Street, which they eventually grew out of in 1970. The firm then moved to Thomastown where it remains in operation today and one of Australia's leading tool and gauge manufacturers.[1]

Analysis of Surviving Factory Buildings in Northcote

By 1930, the majority of Northcote factories were still concentrated in the corridor between High Street and St Georges Road from Merri Creek to Darebin Road but significant development had also occurred in Thornbury to the north and Fairfield in the south-east corner of the municipality. *(map 10 & table 17*

Of the 109 factories listed in the *Sands and McDougall Directory* for 1930, 21 surviving examples (almost 20%) were identified in the study. This preservation rate is slightly better higher than Brunswick, though it is significantly less than either Fitzroy or Collingwood. *(table 18)* The spread of pre-1931 factory buildings does not reflect the historical distribution of each industrial sector, though the sample is probably too small too draw any valid conclusions from this. It is significant, however, that all manufacturing sectors present in 1930 except for the miscellaneous products, group, are represented by at least one surviving building. In addition, there is a good spread of surviving factory buildings throughout the municipality, providing good examples of the character of early Northcote factories in most of the areas where industry was concentrated prior to 1930. *(refer to map 10).*



[7] Swift, p.108; Northcote Urban Conservation Study, p.12.

[1] Brian Carroll, *Australian Made - Success Stories In Australian Manufacturing Since 1937,* Inst. Production Engineers of Aust., 1987, pp.79-81.

Unfortunately few of the smaller factories in Fairfield have survived. However, the United Felt Hat Mills (c.1930) and Porter's sawmills (c.1910) in Heidelberg Road remain as good examples of the larger works. The makeshift nature of many early works and the dominance of post World War II factory construction have led to a far more modern factory stock in Northcote than in other Northern Suburbs.

The Fairfield Paper Mill, opened in 1919, as Victoria's fourth paper mill, and is still one of Northcote's largest manufacturing works. Extensive re-modelling and expansion of the plant since the Second World War have left little of the earlier building fabric intact apart from some brick buildings near the river and the truncated chimney base of the original boiler house from the 1920s and a two-storied cement rendered building believed to date from the 1930s. Of the surviving factories in Northcote itself, Joshua Pitt's tannery in Gadd Street and Lawrence's dyeworks in Westgarth Street, are the most significant, whilst in Thornbury the Northcote Pottery provides the last surviving link with a once much larger clay-products industry of potterises and brickworks.

Table 18: Analysis of Surviving Factory Buildings in Northcote and Comparison with Historical Distribution by Factory Type.
compiled from Sands & McDougall's Directory of Victoria for 1930 & Summary List of Sites Examined

MANUFACTURING SECTOR	Sands & McDougall's Directory of Victoria - 1930		Factory Study - Surviving Factory Buildings Recorded in Northcote		
	Number of Factories in Northcote	Proportion of Total	Number Built pre 1931	Proportion of pre 1931 Total	Number Built post 1930
Food & Drinks	10	9.2%	4	19.0%	-
Clothing & Textiles	22	20.2%	2	9.5%	2
Footwear	6	5.5%	1	4.8%	-
Engineering & Metal Products	21	19.3%	4	19.0%	-
Noxious Trades & Animal By-products	3	2.8%	1	4.8%	-
Timber Products & Furniture	18	16.4%	3	14.3%	-
Building Materials	15	13.7%	1	4.8%	-
Chemicals	4	3.7%	2	9.5%	-
Other Vegetable Products	7	6.4%	3	14.3%	-
Miscellaneous Products	3	2.8%	-	0.0%	-
TOTALS	109	100 %	21	100 %	2

PRESTON

At 3,560 hectares, Preston is larger than any of the other northern suburban municipalities covered in this study, except Broadmeadows, but despite its size, it has never been particularly prominent in manufacturing. Preston has a long manufacturing history dating back to the immediate post gold rush years, but its three principle industries, tanning, bacon & ham curing and brickmaking had all passed their peak by the 1930s. Like neighbouring Northcote, Preston became bart of the Shire of Jika Jika on 8th November 1871. Following the separation of Northcote in 1883, the shire of Jika Jika was renamed the Shire of Preston on 11th September 1885, later becoming a Borough , then in 1922 a Town and finally graduating to City status on 14th July 1926.[1]

Manufacturing in Preston commenced as early as the 1860s, although albeit on a small scale. In keeping with neighbouring Northcote and Coburg, most of the early manufacturing activities in Preston had a close tie with rural industry. One of the first significant manufacturers in the district was Alfred Hurlstone, who established the Preston Steam Flour Mills in Wood Street in 1864 using machinery from the earlier Janefield water-powered flour mill on the Plenty River which his father had leased since from 1848 to 1855.[2]

In 1862, two Scottish-born immigrants, William Watson and William Paterson, established Victoria's first bacon-curing works at Preston. In a small timber building at the corner of Plenty Road and Dundas Street, they produced mild sugar cured bacon under the appropriately chose: label 'Pioneer Brand'. Watson and Paterson had learnt the art of bacon-curing in Scotland, and worked for the same provisioning firm in Glasgow before emigrating in 1859. Once in Australia, Watson had raised capital by operating a small provisioning shop from a tent on the Ballarat goldfields, before joining up with his former workmate to establish their own bacon factory. Watson & Paterson not only played a pioneering role in establishing Preston's reputation as a bacon and ham producing town, but also played an important role in training many of the men who subsequently went on to play a leading part in the industry throughout Australia. Two of Watson & Paterson's employees who became equally well known in the industry were John Farmer and James Hutton.[3]

In 1848, two brothers, Baldwin and William Doolan, established a blacksmithing and wheelwrights shop in Plenty Road near Tyler Street. Much of their business would have involved shoeing horses and repairs to drays and horse carriages, but they were probably also involved in some of manufacturing activities such as making ploughs for local farmers. In a sense, the Doolan Brothers can be regarded as the pioneers of the engineering trade, which became a significant part of Preston's manufacturing industries after 1900. The Doolans remained in business for 50 years before finally retiring in 1918. By 1870, they had been joined by four other blacksmiths in what was already a significant local industry.[4]

As with the bacon and ham curing trade, proximity to local farmers was probably an important contributing factor in the establishment of the first tanneries at Preston, but the vital factor seems to have been the availability of abundant good-quality fresh water from the Yan Yean pipeline.[5] William Braithwaite opened Preston's first tannery in 1865. Born in Yorkshire, England, Braithwaite had arrived in Victoria with his young family in January 1863 and shortly afterward purchased a 6 1/4 acre (2.5 hectare) site in Murray Road for £170 where he built his first tannery. Like Watson & Paterson, Braithwaite trained many of the men who would in later years go on to establish their own tanneries at Preston, including his own son, William jnr.[6]

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[1] *Victorian Municipal Directory & Gazetteer*, 1930, p.350.

[2] Lewis, pp.40-1 & p.96-8.

[3] Carroll & Rule, 1985, p.43-5.

[4] Carroll & Rule, p.28; Sutherland, p.734; *Sands & McDougall's Directory*, 1870.

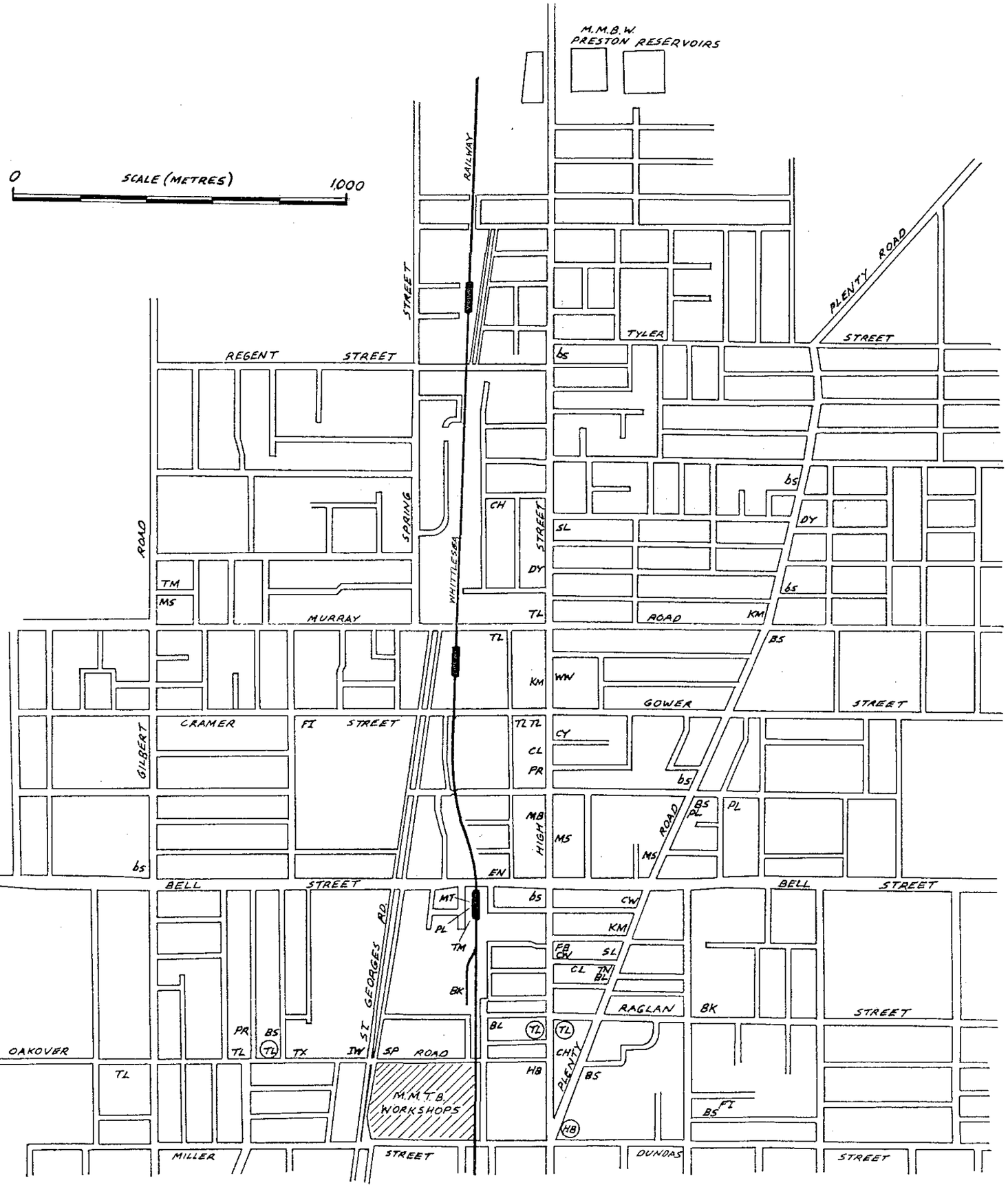
[5] The importance of proximity to the Yan Yean pipeline has been suggested by Carroll & Rule, p.51, although no specific evidence to support this is given. An examination of the early M.M.B.W. maps demonstrates just how close the Preston tanneries clustered between High Street and St. Georges Road were to this pipeline.

[6] Carroll & Rule, pp.51-55; Sutherland, vol.2, p.734.

MAP 11.

CITY OF PRESTON
DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study



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KEY TO FACTORY TYPES

BK	brickworks
BL	blacksmiths
bs	boot & shoes makers
BS	boot & shoe manufrs. & factories
CH	chemicals, ink & dye manufrs.
CL	clothing manufrs. & factories
CW	coachbuilders & wheelwrights
CY	cycle builders & cycle works
DY	dyers
EN	engineers & machinists
FB	brass foundries & founders
FI	iron foundries & founders
HB	ham & bacon manufacturers
IW	iceworks
KM	knitting mills
MB	motor body builders
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PL	fibrous plaster manufrs.
PR	printers
SL	saddlers
SP	soap & candle manufrs., works
TL	tanneries, curriers & leather dressers
TM	timber mills & joinery works
TN	tinsmiths
TX	textile mills (spinning, weaving, &c.)
WW	wood workers & turners, wicker workers

Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

Michael Emery pioneered the clay-products industry in Preston, establishing the St. John's Pottery in Wood Street in 1853. After working on his own for three years, he was joined by his first assistant and soon afterwards recruited another three skilled potters from the United Kingdom. He produced mainly earthenware flower pots, and by 1888, was turning out some 300,000 a year.[1] By the late 1850s, Gottleib Arndt began the Preston brickmaking trade, opening two small clay pits in Raglan Street and Collier Street. Although Arndt was the first to manufacture bricks in Preston on a regular basis, his brickyards were not strictly speaking, factories, because the bricks were all hand-made in the open. Arndt does not ever. appear to have run his brickyards continuously, because in 1870 he was listed in the directories as a farmer only, which was presumably his main profession. Like the tanneries, Preston's brickworks did not develop significantly until the 1870s and were not it was not organised on a proper factory-type basis until the 1880s.

In 1870, Preston was still essentially rural in character. The manufacturing that had commenced was still on a fairly small scale and was primarily concentrated in a small area near the southern boundary of the municipality around the junction of High Street and Plenty Road. Because Preston and Northcote were both still part of the Darebin Shire at this time, there are no official figures of the number of factories in Preston alone, however, from the *Sands & McDougall Directory* it appears that there were only six factories and five blacksmiths' workshops in Preston by 1870 *(table: 19 & 23 -map 11 shows the boundaries of the Darebin Shire).* Whilst the 1860s had seen the first true factories established in Preston, it was during the 1870s and 1880s that significant industrial development commenced.

Alfred Hurlstone moved his flour mill to a new premises in High Street, near the junction with Plenty Road, in 1872. Here he specialised in the manufacture of rye flours which perhaps enabled him to keep milling long after wheat ceased to be grown in the district. The business continued to operate as a flour mill until 1887, when Alfred's sons took over and converted it into a chaff-mill & corn-crushing works.[2] The Preston Glue & Oil Manufacturing Works was established by Fredrick Walker in about 1870, and over the next too decades won widespread praise for its products, receiving medals and awards at exhibtions and shows throughout Austalasia. Closer to home, however, neighbouring residents were more concerned about the offensive smells that the factory produced than the quality of its products.[3]

In 1874, William Braithwaite was killed in an accident at his tannery. His 21-year-old son took over the business and continued its expansion, gradually increasing the workforce from 10 to an average of 16 to 20. By the late 1880s, he was putting through 150 hides a week, producing satin split, harness and Levant leathers in addition to the courser crop and kip leathers made by his father.[4] In 1878, Braithwaite's Tannery was joined by the Barry Brothers, who established a small tannery in Mary Street and the following year, Paul Hardenack established the South Preston Tannery in Plenty Road. Hardenack had previously worked for Michaelis, Hallenstein & Co., of Footscray as a journeyman tanner for seven years and had before that trained in Germany. Beginning on a small scale with no hired labour, he was employing 20 hands by the late 1880s, and putting through 80-100 hides a week.[5]

In 1880, a former employee of Braithwaite's, Thomas Broadhurst, established the Jika Tannery, with James Thomas Hall, at the corner of High and Gower Streets. By 1887, when Broadhurst bought his partner out, the business was as large as Hardenack's.[6] The Gowerville Tannery was also established in 1880, by James Lambert, who specialised in kangaroo leather and the usual calf & kip leathers. The High Street Tannery was established by William Madsen two years later and within six years had reached a similar size to the three leading firms, Braithwaite's, Broadhurst and Hardenack.[7]

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1 Sutherland, vol.2, 734.
2 Sutherland, 1888, vol.2, p.739; Lewis, 1990, p.41.
3 Sutherland, 1888, vol.2, p.735.
4 Carroll & Rule, p.51; Sutherland, vol.2, p.734.
5 Sutherland, vol.2, p.734.
6 Sutherland, vol.2, p.734; Carroll & Rule, p. 53 .
7 Sutherland, vol.2, p.734-5.

Table 19: Manufacturing in Preston 1870-1976.
compiled from The Statistical Register of Victoria, 1870-1910;
Victorian Year Book, 1935-1950 & Manufacturing in Melbourne,
Report of the Technical Advisory Committee, M.M.B.W., 1979, p.39.

Municipality	Year	Number of Manuf.ing Works Recorded	Number of Steam Powered Works	Number of Gas Engine Powered Works	Number of Horse Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees[δ]	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £
Darebin Shire[1]	1870-71	13[Φ]	1	-	4	18	62	2,394	1,730
Jika Jika Shire[2]	1871-72	16[Φ]	4	-	5	22	75	1,785	2,898
Jika Jika Shire[2]	1875-76	14[∞]	6	-	3	21	90	3,885	10,343
Jika Jika Shire[2]	1880-81	15[Φ]	5	-	4	90	123	6,610	10,400
Jika Jika Shire[3]	1883-84	10[Φ]	4	-	3	30	86	3,360	6,950
Preston Shire[3]	1890-91	34	16	-	1	452	529	63,345	35,770
Preston Shire	1896	12	11	-	-	138	195	10,170	9,500
Preston Shire	1900	16	14	2	-	157	221	21,800	13,900
Preston Shire	1910	19					392		
Preston City	1935-36	76					1,983	215,070	523,900[#]
Preston City	1940-41	81					2,006	236,601	556,152[#]
Preston City	1945-50	105					2,324	291,461	671,703[#]
Preston City	1950-51	244					4,978	960,474	1,604,838[#]
Preston City	1971						14,606		
Preston City	1976						13,354		

NOTES: [1] Darebin Shire in 1870 included Northcote, Preston and a large area to the north taking in the rural districts of Epping, Morang & Woodstock - see *Map 7*.
[2] Jika Jika Shire, as proclaimed on 8 Nov. 1871, included the area which later became the municipalities of Preston and Northcote - see *Map 8* for boundary details.
[3] Northcote was separated from the Shire of Jika Jika on 25 May 1883, and the name subsequently changed to the Shire of Preston on 11 Sept. 1885.
[Φ] All figures for these years exclude details relating to one flourmill for which separate returns were not published.
[∞] All figures for this year exclude details relating to one flourmill & one tannery for which separate returns were not published.
[#] Includes value of both land & buildings.
[δ] All employment figures exclude outworkers.

In December 1880, James Carruthers Hutton applied to the Shire of Jika Jika for a licence to set up a piggery and curing works in Oakover Road. Hutton was already operating a piggery & bacon curing works in Moreland Road, Coburg, that he had established with his brother Colin in 1872, but he appears to have been experiencing difficulties with the Coburg Shire Council who were not favourably disposed towards noxious or offensive industries. During 1881, Hutton built a new three-storey factory on leasehold land in Oakover Road and had virtually completed moving his business when the Jika Shire Council finally granted a slaughtering licence for the site after a 12 month delay. A sales office for the new works was set up nearby in James Hutton's house on High Street.[1]

The development of the Preston brickmaking industry in the 1870s and early 1880s has been dealt within the discussion of Northcote's brickworks, because Preston and Northcote both fell within the same shire during these years. Brickmakeing in both suburbs shared several associated and parallel developments during these years. Whilst brickworks and potteries continued to develop as leading industries in Preston during the late 1880s, they were not as highly capitalised, nor as productive as their counterparts in Northcote or Brunswick. Typical of the Preston brickworks during this period was the Walkenden Brothers' works in South Preston, which was established in 1884, with a workforce of 6 and an output of about 20,000 bricks per week. By 1888, production had increased by 150% and the works had been extended to incorporate 3 kilns and 11 drying sheds, but all moulding of the bricks was still done by hand.[2]

F.A. Harris had established Preston's first steam-powered pottery & brickworks in 1878, moving from a smaller works in Clifton Hill where he began in 1872. By 1888, he had the largest works of its kind in Preston, with a workforce of almost 100 people producing a diverse range of flower, chimney and fern pots, agricultural pipes and drain pipes, as well as, fire bricks and regular machine-pressed red & white bricks at the rate of 200,000 a week. Jos. Gamble operated the Junction Patent Pressed Brick Works nearby, with a similar output of bricks alone.[3]

As in most other suburbs, Preston's manufacturing industries suffered badly during the 1890s depression, though surprisingly they began to show signs of recovery before many of the other northern suburbs. Between 1895 and 1900, the ham and bacon-curing trade underwent a period of strong growth with the number of works of this type in Preston increasing from three to six. At the same time employment in the trade grew from 46 to 82, whilst output and overall investment in plant and buildings more than doubled. During these years, Preston's position in the Victorian bacon and ham trade rose from number three to number one producer in terms of output *(table 22).* In 1900, 35,000 pigs were slaughtered in Preston representing a third of all off-farm pig slaughterings throughout Victoria.[4]

By this time, the firm of J.C. Hutton had emerged as Victoria's largest bacon & ham curer. The founder had died in 1886, but Huttons continued to prosper, expanding their trade into all Australian states and opening branch factories in Warnambool, Wangaratta and Brisbane. The Queensland branch even diversified into butter and cheese manufacture. By 1903, Hutton's 'Pineapple Brand' had become familiar with householders throughout Australia, as did the firm's 'Don't Argue' slogan that appeared on billboards everywhere in later years.[5]

The Preston tanneries entered a period of significant structural change during the 1890s. Between 1890 and 1900, the number of tanneries in the municipality actually declined from eight to five *(table 20),* but at the same time the number of tan pits in use and overall employment rose, indicating that those firms that did survive were continuing to expand. The output of skins and hides per annum also rose significantly during these years. By 1900, Preston ranked third in the state in its output of tanned hides but in overall output, including skins, the Preston industry only ranked about sixth. The reason for these differences was because at this time the Preston tanneries

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[1] Broome, p.141; Carroll & Rule, p.45.

[2] Sutherland, 1888, vol.2, p.736.

[3] Sutherland, 1888, vol.2, pp.734 & 638.

[4] In 1895, Preston had been the third in the volume of bacon and ham production, behind Bendigo and Warnambool. *Statistical Register of Victoria,* Production, 1895 & 1900.

[5] Carroll & Rule, pp45-8; Smith, *Cyclopedia of Victoria,* 1903, vol 1; *Wise's Post Office Directory,* 1899-1900.

were concentrating almost entirely on calf skins and cow hides unlike other tanning centres, such as Richmond, Flemington and Geelong where sheepskins formed the bulk of output. One possible explanation for this, is that whilst Preston had a good supply of high quality water needed for the tanning process, it was too expensive to be used in the large quantities required for scouring wool stripped from sheep skins. In addition, disposal of waste water was obviously a problem with no convenient rivercourses nearby.[1]

Despite this, one of the few pre-1930 factories that survive in Preston is Schofield's wool-scouring works in Oakover Road which operated during the late 1890s. According to the *Statistical Registers*, Schofield's appear to have had a modest output of about 120,000 to 200,000 lbs. (55,000 - 90,000 kg) of washed wool per annum.

Only two of the tanneries operating in Preston during the late 1880s survived the structural changes of the 1890s. These were Braithwaite's and Hardenack's. However some new firms were established. Thomson & Co. opened a tannery in High Street, near the corner of Warrs Avenue, where Howe's tannery is now situated. In 1901, William Zwar purchased the Parkside Tannery in Mary Street, that had previously been occupied by Graham & Sons. Zwar was a very experienced tanner. He had formerly been a partner in the well-known Zwar brothers tannery at Beechworth and subsequently spent 11 years working for Lloyd & Maginnis at Broadford before moving to Preston. At the Parkside Tannery he specialised in sole leather for local shoemakers, bridle and harness hide for the leading saddlers in Sydney, Launceston, Adelaide & Perth, and delicate light-coloured crop for the London export market. He also imported rough tanned hogskins for finishing and dressing. He installed the most up-to-date machinery available, equipping the works for an output of up to 320 hides per week and within 12 months was employing 11 hands.[2]

Thomas Broadhurst, who had sold his original Jika Tannery during the height of the 1880s land boom, re-entered the trade six years later by building a new tannery in Murray Road opposite Braithwaite's, between the railway and Mary Street. He soon reclaimed his position as one of Preston's leading tanners and in later years was also a prominent tan bark merchant, with a bark mill at Cuballing in Western Australia.[3]

Significant structural changes in the tanning industry continued after 1900. The Preston tanneries had to cope with both reduced import tariffs on leather and free-trade throughout Australia, after Federation in 1901. As well, the Wages Board began to regulate minimum wages and conditions in the industry and placed restrictions on the employment of juvenile labour.[4] In addition to this, rapid technological change was occurring with the introduction of the chrome tanning process and new patent machinery for splitting and dressing leather. The new technology offered considerable improvements in productivity, but it was not without its difficulties. New equipment required extra capital investment and skilled operators. The chrome tanning process was particularly hard to master with the finer details remaining closely guarded trade secrets for many years. However, the new chemical processes had several major advantages over tanning by the conventional methods of steeping skins and hides in organic tannin liquors such as that produced by wattle bark, the principle one being the reduction in time for the tanning process from several weeks or months to just a few days. Chrome tanning also required less space, since it did not depend on large open tan-pits, and was not so dependent on cheap fresh water whilst the product produced was less likely to perish than traditional leather. As a consequence there was a major relocation of the industry in the early 20th century, away from the traditional riverside locations, to sites more convenient to transport and reticulated water supplies.[5]

In 1903, Braithwaite began building a large three-storey brick drying house to help handle his increased throughput of up to 1,000 hides a week and a tramway to help reduce the labour involved

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[1] *Statistical Register of Victoria*, Production, 1900.

[2] Carroll & Rule, p.54; *Australian Leather Journal*, 15.12.1902, p.497.

[3] Carroll & Rule, p.53-4.

[4] *Australian Leather Journal*, 15.10.1903, p.379, "Industrial Legislation and its Dangers"; 15.3.1902, p.696; 15.3.1901. pp505-6.

[5] *Australian Leather Journal*, 15.12.1900.

Table 20: Tanneries, Fellmongers & Wool-scouring Works in Preston & Northcote 1875-1900.
compiled from The Statistical Register of Victoria, 1875-1900.

Municipality	Year	Total Number of Works	Number of Steam Powered Works	Combined Motive Power of Engines h.p.	Total Number of Employees	Total Number of Tan Pits	Total Value of Plant & Machinery £	Total Value of Buildings £	Number of Hides Tanned per year	Number of Skins Tanned per year	Number of Skins Stripped per year	Wool Washed per year /1,000 lbs
Jika Jika Shire[1]	1875-76	1										
Jika Jika Shire[1]	1880-81	4	1	8	29	71	840	1,250	7,000	5,080	-	-
Jika Jika Shire[1]	1883-84	3	1	8	35	69	800	1,950	8,006	15,420	-	-
Preston Shire[2]	1885-86	6	3	23	63	145	1,985	2,565	16,205	19,220	-	-
Preston Shire	1890-91	8	7	106	135	283	12,870	28,700	26,104	25,252	-	1,226
Preston Shire	1896	6	5	79	136	210	5,670	4,550	39,816	9,287	-	210,000
Preston Shire	1900	5	5	75	116	261	8,500	5,500	50,100	21,630	-	120,000
Northcote Borough	1883-84	-	-	-	-	-	-	-	-	-	-	-
Northcote Borough	1885-86	1#										
Northcote Town	1890-91	1#										
Northcote Town	1896	2	1	20	36	78	2,230	1,780	7,500	2,520	-	-
Northcote Town	1900	5	2	31	51	77	2,870	3,520	14,960	8,900	-	-

NOTES: [1] Jika Jika Shire, proclaimed on 8 Nov. 1871, included both Preston and Northcote tanneries until 25 May 1883 when Northcote separated from the shire to form a borough in its own right.

[2] The Shire of Jika Jika was renamed as the Shire of Preston on 11th Sept. 1885.

No separate details were published on this tannery.

Table 21: Brickworks & Potteries in Preston 1870-1900.

compiled from The Statistical Register of Victoria, 1870-1900.

Municipality	Year	Total Number of Works	Number of Steam Powered Works	Number of Horse Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings £	Number of Bricks Produced	Value of Pottery Produced £
Darebin Shire[1]	1870-71	6	-	3	3	19	384	100	594,000	500
Jika Jika Shire[2]	1871-72	5	-	5	6	30	695	890	1,328,000	500
Jika Jika Shire[2]	1880-81	5	1	4	50	47	4,180	5,350	3,650,000	2,900
Jika Jika Shire[2]	1883-84	3	-	3	n.a.	15	800	600	n.a.	1,700
Preston Shire[3]	1889-90	5	4	1	174	256	21,600	15,200	13,900,000	2,000
Preston Shire	1890-91	6	5	1	349	322	46,350	23,000	33,130,000	4,300
Preston Shire	1894-95	2	1	1	30	33	4,100	10,050	4,310,000	100
Preston Shire	1896	1#	1	-						
Preston Shire	1900	-	-	-	-	-	-	-	-	-

NOTES: [1] Darebin Shire in 1870 included both Northcote & Preston brickworks.
[2] Jika Jika Shire, proclaimed on 8 Nov. 1871, included both Preston and Northcote brickworks until 25 May 1883 when Northcote was separated from the shire to form a separate borough in its own right.
[3] The Shire of Jika Jika was renamed as the Shire of Preston on 11th Sept. 1885.
No separate details were published on this brickworks.

Table 22: Ham & Bacon Curing Works in Preston, Northcote & Brunswick 1891-1900.
compiled from The Statistical Register of Victoria, 1891-1900.

Municipality	Year	Total Number of Works	Number of Steam Powered Works	Number of Gas Engine Powered Works	Combined Motive Power of Engines h.p.	Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £	Total Number of Pigs Slaughtered	Weight of Ham & Bacon Cured /1000 lbs.
Preston Shire	1891-92	3	2	-	39	45	4,600	2,500	21,346	2,853
Preston Shire	1896	3	3	-	31	49	3,950	3,400	15,537	1,633
Preston Shire	1900	6	5	1	53	82	12,200	7,950	35,049	3,435
Northcote Town & Boroondara Shire#	1896	2	2	-	124	24	900	800	9,755	1,272
Northcote Town	1900	2	1	1	11	13	720	650	1,495	162
Brunswick Town	1896	3	2	-	27	18	1,350	700	3,018	264
Brunswick Town	1900	2	1	-	12	10	410	860	3,559	297

NOTES: # Separate figures for ham & bacon curing works in Northcote only were not published in this year.

In 1903, Braithwaite began building a large three-storey brick drying house to help handle his increased throughput of up to 1,000 hides a week and a tramway to help reduce the labour involved in moving bark to the tanning pits.[1] Up until this time most of the tannery buildings in Preston had been built of timber and corrugated iron, but other tanneries were soon following Braithwaite's example, replacing earlier structures with more solid brick buildings and erecting substantial new buildings.

William Zwar also built a new brick building in 1903, to be used for producing new lines of enamel and japanned leathers. He engaged the expert leather-maker, John Howe to oversee the new processes.[2] John Howe stayed with Zwar's until 1911, when he left to establish his own tannery at the corner of High Street and Warr's Avenue. From an initial workforce of about 40, he was able to expand reapidly becoming Preston's largest tannery within 10 years and achieving a peak workforce of 300. Howe's made a specialty of patent and enamelled leathers for shoes, motor car and railway carriage upholstery, and furniture. The 1922 Parliament House building in Canberra was originally furnished throughout with upholstery using Howe's 'Excelsior' brand leather.[3]

During the period 1900 to 1930, Preston began to see some further diversification of its manufacturing industries, though not to the same extent as either Northcote or Coburg. Tanning still remained the most important manufacturing industry in the municipality during these years, whilst the brickmaking and ham & bacon-curing industries rationalised with only the largest firms surviving. By 1930, only two bacon and ham factories, Watson & Paterson's and Hutton's were still in business. Hutton's continued until the 1970s, when it was finally closed, whilst Watson & Paterson's factory was sold to Otto Wurth Pty. Ltd. in 1958. Otto Wurth was a German immigrant who had begun manufacturing continental sausages and small goods in a small Richmond factory in 1934. Today, the firm that he helped found remains in business on the site where Watson & Paterson pioneered Preston's first manufacturing industry. Some of the later buildings constructed by Watson & Paterson still survive.[4]

Clothing, footwear, chemicals and miscellaneous goods saw modest growth in Preston between 1900 and 1930 *(table 23)*. The engineering and metal products sector also saw significant growth during these years, with a broad range of new businesses from coach-builders and motor body builders to iron foundries, oven makers, sheet metal works and even a switchboard manufacturer. Small engineering firms often provided support for other local manufacturers. Matthew Drolz, for example, had established a well equipped workshop in Bell Street by 1902, where he made and repaired machinery for the local tanneries and bacon-curing works.[5] By far the largest and most significant development in the engineering sector during this period was the establishment of the Melbourne & Metropolitan Tramways Board's workshops in 1925, on the block bounded by St. Georges Road. Miller Street and the railway line. Within three years 500 workers were employed in the workshops. Between 1926 and 1956, 426 W class trams were built or assembled at the workshops, and in addition, numerous fittings and electrical components were manufactured and all major tram maintenance and overhauls were conducted there. During the Second World War, the Tramways Workshops produced pontoon bridges and other heavy equipment for the armed forces.[6]

As in Brunswick and Northcote, the Preston brickmaking trade suffered heavily during the 1890s depression. From a peak in 1890, when six Preston brickworks with 322 employees produced 33.1 million bricks, the industry collapsed to nothing almost overnight. For David Clifton, who established the Clifton Brickworks between St Georges Road and the railway line early in 1890, the outlook must have very quickly turned bleak. By the end of 1890, the Builders' Brick and Tile Company were reported to be badly hurt by the Maritime Strike which had cut off coal supplies.

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[1] *Australian Leather Journal*, 15.07.1901.
[2] *Australian Leather Journal*, 15.12.1903, pp. 534-5 & 15.10.1903, p.390.
[3] Carroll & Rule, p.55.
[4] Carroll & Rule, pp.48-9.
[5] Smith, vol.1, p.583-4.
[6] Carroll & Rule, pp.142-3, 169; M. Churchward, 'W Class Trams, A Report to the National Trust Industrial Heritage Committee, 1992, Appendix I.

Table 23: A Comparison of Factory & Non-Factory Manufacturing in Preston 1870, 1900 & 1930.
compiled from the Sands & McDougall Directories.

PRESTON - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930	
	1870	1900	1930	PRESTON	RESERVOIR
FOOD, DRINKS & TOBACCO					
grain mills	-	1	-	-	-
flourmillers	2	-	-	-	
ham & bacon curers	3	4	1	1	-
ham & bacon factories	-	1	1	1	-
subtotals	*5*	*6*	*2*	*2*	-
CLOTHING & TEXTILES					
collar manufrs.	-	-	1	1	-
knitted goods manufrs.	-	-	3	3	-
flock manufrs.	-	-	1	1	-
art needlework manufrs.	-	-	1	1	-
subtotals	-	-	*6*	*6*	-
FOOTWEAR					
boot & shoe manufrs.	-	-	2	2	-
slipper manufrs.	-	-	1	1	-
slipper upper manufrs.	-	-	1	1	-
subtotals	-	-	*4*	*4*	-
ENGINEERING & METAL PRODUCTS					
coachbuilders	-	-	1	1	-
motor body builders	-	-	1	1	-
engineers	1	1	3	1	2
iron foundries	-	-	1	1	-
stove & oven manufrs.	-	-	1	1	-
brass founders	-	-	1	1	-
metal workers	-	-	1	1	-
tramway workshops	-	-	1	1	-
switchboard manufrs.	-	-	1	1	-
subtotals	*1*	*1*	*11*	*9*	*2*
OTHER VEGETABLE PRODUCTS					
printers	-	1	2	2	-
paper & cardboard box manufrs.	-	-	1	1	-
subtotals	-	*1*	*3*	*3*	-
MISCELLANEOUS GOODS					
tent makers	-	-	1	1	-
picture frame makers	-	-	1	1	-
ice works	-	-	1	1	-
subtotals	-	-	*3*	*3*	-
TOTALS	7	18	56	52	4

PRESTON - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930	
	1870	1900	1930	PRESTON	RESERVOIR
FOOD, DRINKS & TOBACCO					
bakers	1	2	8	6	2
pastrycooks & confectioners	-	-	4	4	-
confectioners	-	3	62	50	12
pastrycooks	-	-	8	7	1
subtotals	*1*	*5*	*82*	*67*	*15*
CLOTHING					
milliners	-	-	3	2	1
tailors	-	1	12	12	-
dressmakers	-	2	4	3	1
costumiers	-	-	8	7	1
fur & fabric dyers	-	-	3	3	-
subtotals	-	*3*	*30*	*27*	*3*
FOOTWEAR					
shoemakers	2	-	-	-	-
bootmakers	2	5	11	10	1
boot repairers	-	-	20	16	4
subtotals	*4*	*5*	*31*	*26*	*5*
ENGINEERING & METAL PRODUCTS					
wheelwrights	-	1	1	1	-
coach painters	-	-	1	1	-
motor repairers	-	-	1	1	-
motor mechanics & engineers	-	-	2	2	-
blacksmiths	6	3	3	2	1
farriers & shoeing forges	-	1	1	1	-
tinsmiths	-	-	1	1	-
watchmakers	-	1	-	-	-
jewellers	-	-	2	2	-
sewing machine repairer	-	-	1	1	-
cycle makers	-	-	1	1	-
subtotals	*6*	*6*	*14*	*13*	*1*
OTHER VEGETABLE PRODUCTS					
wicker workers	-	-	1	1	-
subtotals	-	-	*1*	*1*	
MISCELLANEOUS					
subtotals	-	-	-	-	-
TOTALS	14	20	162	137	25

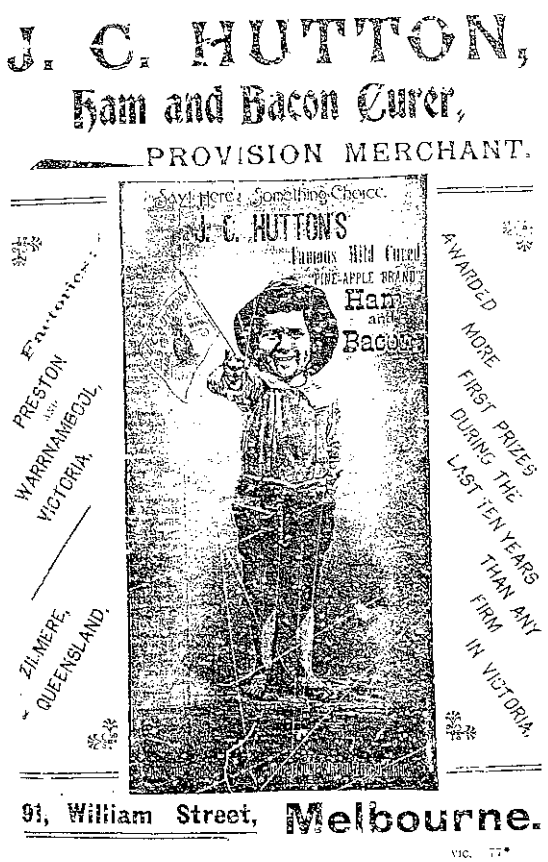
ble 23, continued: A Comparison of Factory & Non-Factory Manufacturing in Preston 1870, 1900 & 1930.

ESTON - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930	
	1870	1900	1930	PRESTON	RESERVOIR
S TRADES & ANIMAL BY-PRODUCTS					
manufrs.	-	-	1	1	-
ers	-	1	-	-	-
ers	1	2	3	3	-
ers	-	4	2	2	-
ries	-	-	1	1	-
& currriers	-	-	1	1	-
& leather dressers	-	-	1	1	-
dressers	-	-	1	1	-
ather manufr.	-	-	1	1	-
ather manufr.	-	1	-	-	-
scourers	-	-	1	1	-
carvers					
totals	1	8	11	11	-
R PRODUCTS & FURNITURE					
mills	-	-	1	1	-
mills	-	-	2	1	1
ery works	-	-	1	-	1
niture makers					
totals	-	-	4	2	2
DING PRODUCTS					
works	-	-	2	2	-
works	-	1	-	-	-
ery works	-	-	3	3	-
ous plaster manufacturers	-	-	3	3	-
mental masons works	-	-	1	1	
crushing works					
quarries - not in subtotal	-	1	1	1	-)
totals	-	2	10	10	-
ICALS					
& colour manufrs.	-	-	1	1	-
ers ink manufrs.	-	-	1	1	-
totals	-	-	2	2	-

PRESTON - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930	
	1870	1900	1930	PRESTON	RESERVOIR
OTHER ANIMAL BY-PRODUCTS					
saddlers	1	1	3	2	1
subtotals	1	1	3	2	1
TIMBER PRODUCTS & FURNITURE					
ship joiners	1	-	-	-	-
subtotals	1	-	-	-	-
BUILDING PRODUCTS					
potters	1	-	-	-	-
subtotals	1	-	-	-	-
CHEMICALS					
subtotals		-	1	1	



In the following September, all of Preston's brickworks had been forced to close temporarily due to the collapse of the building trade. By 1895, two of the brickworks were back at work, but their output was still only 4.3 million bricks for the year, little more than an eighth of what it had been four years earlier *(table 21)*.[1] By 1900, all of the Preston brickworks had again closed and most were never to regain their former strength. The truth was that as a result of the building boom in the 1880s, Melbourne had been left with a massive surplus brickmaking capacity and only those firms that were highly mechanised and efficient were to survive in the long term.

The Clifton Brick & Tile Co. was an exception, going on to become a steady and significant producer after 1900. Both bricks and tiles were produced up until 1950 and then bricks only. At its peak the company had two Hoffman kilns in production, but by the early 1950s this had been cut to only one, with an output of 140,000 bricks per week. By 1952, major landslips had already reduced the output of the Clifton claypit and in 1963 production ceased all together. The slow process of filling the 50 metre pit with domestic garbage then began. The claypit site now forms part of the Ray Bramham Gardens, whilst the St. John's Greek Orthodox School stands on the former site of the kilns.[2]

The South Preston Brick & Tile Co. on the south side of Raglan Street, had closed down by the 1930s and the site of its former claypits is now occupied by the Florence Adams playground in Milton Crescent.[3] The Builder's Brick & Tile Co. went into liquidation in September 1893, but was subsequently reformed and was still in business at its site on the north side of Raglan Street during the 1930s. By the 1950s, the works had closed permanently and the claypit had been filled to from the T.A. Cochrane Reserve.[4] Apart from Clifton's pit, the only other claypit still in use in Preston by the 1950s was a small hole near the corner of Raglan and Albert Streets producing 'reef' material for the Northcote Tile Co. in Thornbury.[5]

Thomas Broadhurst Pty. Ltd. expanded their workforce from 80 in 1919 to 150 by the 1940s, before selling out to Johnson Leather of Sydney in 1950. Johnson Leathers continued to operate the tannery until the early 1960s, after which it was closed and the buildings demolished. William Braithwaite's only son was killed during the First World War so when Braithwait senior also died in 1932, management passed to a nephew, William Hopper. In 1937 the tannery was sold to Geo. Pizzey & Son Ltd., a leading firm of leather merchants based in Fitzroy, who in turn continued to operate it until the early 1960s.

J.P. Howe & Co. Pty. Ltd. is the only pre-1930 Tannery still in business in Preston. Most of their surviving buildings date from 1920, when the orginal buildings were replaced after being destroyed by fire. Nevertheless, they represent an important link with Preston's early tanning industry. Across High Street from Howe Leather, the site of Paul Hardenack's South Preston Tannery is now occupied by Standard Leather, with the main buildings dating from about 1940 and continue to be used for leather processing and tanning.

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[1] *Statistical Register of Victoria,* Production, 1890 & 1895.

[2] A.D.N. Bain & D. Spencer-Jones, 'The Melbourne Brick and Tile Industry, Part 2', *Mining & Geological Journal of Victoria,* vol.4, no.6, 1952, pp17-18; Carroll & Rule, p.61; MMBW Sewerage Plan No. 107.

[3] Carroll & Rule, p.60; *Sands & McDougall Directories*; MMBW plan No.107.

[4] *Sands & McDougall Directories;* MMBW 160' to 1" plan No.112.

[5] Bain & Spencer Jones, 'The Melbourne Brick & Tile Industry', pp.13 & 27.

Annalysis of Surviving Factory Buildings in Preston

By the 1930s, there were at least 56 factories in the City of Preston *(table 23)*, but only four of these were located north of Regent and Tyler Streets, in what is known known as the suburb of Reservoir. Early manufacturing in Preston was concentrated almost entirely along the Plenty Road and High Street corridors or in the area between St. Georges Road and the railway line *(map 11 and table 24)*, and since the Second World War new manufacturing industries have also tended to concentrate in these areas. The large industrial zone that now extends along Darebin Creek on the eastern boundary of the municipality appears to have only developed since the Second World War and contains no pre -1931 factories. Until after 1950, much of the northern, eastern and western parts of Preston remained rural and have since been taken up for residential and retail shopping centre developments.[1]

Of the 56 factories listed in Preston in the *Sands & McDougall Directory* for 1930, the buildings of only four have been identified as surviving. These were all associated with either the food and drinks, or noxious trades sectors. Other once important manufacturing industries in Preston, such as engineering works and brickworks, are, unfortunately, entirely unrepresented by surviving buildings from this period. The proportion of surviving pre-1931 factory building in Preston (7.1%) is similar to that in Coburg (10.2%) where there was a similar number of factories operating in 1930, though perhaps for different reasons.

Both the relatively slow growth of industries in Preston, once the early tanneries, brickworks, bacon-curing works and engineering works had closed, and the common use of simple corrugated iron or timber clad buildings, meant that former industrial buildings were of little commercial value once they became vacant and therefore, most were quickly demolished to make way for new factories, housing or parkland.

Table 24: Analysis of Surviving Factory Buildings in Preston and Comparison with Historical Distribution by Factory Type.

MANUFACTURING SECTOR	Sands & McDougall's Directory of Victoria - 1930		Factory Study - Surviving Factory Buildings Recorded in Preston	
	Number of Factories in Preston	Proportion of Total	Number Built pre 1931	Proportion of Total
Food & Drinks	2	3.6%	1	25 %
Clothing & Textiles	6	10.7%	-	0 %
Footwear	4	7.1%	-	0 %
Engineering & Metal Products	11	19.6%	-	0 %
Noxious Trades & Animal By-products	11	19.6%	3	75 %
Timber Products & Furniture	4	7.1%	-	0 %
Building Materials	10	17.9%	-	0 %
Chemicals	2	3.6%	-	0 %
Other Vegetable Products	3	5.4%	-	0 %
Miscellaneous Products	3	5.4%	-	0 %
TOTALS	56	100 %	4	100 %

[1] Carroll & Rule, p.174; MMBW, *Metropolitan Planning Scheme*, 1954, Report.

COBURG

Like Brunswick to the south, Coburg was initially laid out for rural settlement in the first government surveys of 1837 and 1839, with 327 acres to the north-east of the intersection of Sydney Road and Bell Street being set aside for the village of Pentridge. The first sale of allotments in the district took place in August and October 1839.[1]

The first farmers who settled in the Pentridge district had to struggle against depressed prices and the difficulty of accessing markets in the city along the then unmade Sydney Road. In June 1842, a group of local residents meet to form the Sydney Road Trust (one of the first two such bodies formed in Victoria) with the aim of improving their vital transport connection with the city. Funds for roadwork were difficult to obtain, however, and work progressed slowly. Although the present alignment of Sydney Road, through Brunswick and Coburg, is the most direct route out of the city for northward-bound travellers, it was not officially recognised as a main road until 1850. Prior to this Pascoe Vale Road to the west was used by most traffic, particularly during wet weather, because it avoided some of the low-lying stretches that degenerated into a virtual quagmire in winter.[2]

The 1850s, issued in the first period of sustained growth for the Coburg district with the enormous goldrush immigration stimulating sharp rises in the value of both farm land and commodities. In addition, a temporary Penal Stockade was built north of Bell Street near Merri Creek, in 1850, primarily to provide labour for quarrying and construction work on the newly proclaimed Sydney Road. The Pentridge Stockade considerably boosted the district's population, with new jobs for wardens, quarrymen, carters, woodsplitters and shop-keepers as well as the prisoners themselves. By 1857, only 25% of the adult male non-prisoner population were involved in farming, compared to 26% employed as police & prison wardens, 22% involved with transport or road construction and 6% engaged as shop keepers.[3]

Despite its obvious benefits to the local economy, free settlers in the Pentridge district were always less than happy about the presence of the prison within their midst. Apart from the stigma associated with having a prison with the same name as their town, there was the ever present danger of prison breakouts (which were numerous throughout the 1850s) and the equally real risk of being shot at by over zealous wardens chasing escapees. After the *Select Committee on Penal Discipline* recommended in September 1857 that the government should build Victoria's central penitentiary at Pentridge there was public outcry. Over the next few years local residents organised numerous public protest meetings and petitions, but the best outcome they managed to achieve, was to have the name of the municipality, then the Pentridge Road Board, officially changed to the Coburg Road Board in March 1870.

Construction of the earliest of the surviving bluestone buildings at Pentridge Prison, B Division (originally known as A Division or the Panopticon) began in 1857 using free labour, followed by what is now A,C & F Divisions and the outer wall, in 1858, using supervised prison labour. Together with road-building and bridge-building, such as the Newlands Road bridge (completed 1865) and the Murray Road Bridge (completed 1870), the construction of Pentridge Prison helped to establish quarrying as the first major non-farming industry in Coburg. By 1865, there were five bluestone quarries operating in the municipality.[4]

Pentridge Prison was also directly responsible for the beginnings of the first true manufacturing industry in Coburg. Prison authorities from an early date encouraged prisoners with trade experience to work at their profession within the prison. Thus by 1856, the prison had established workshops for 32 tailors, 27 shoemakers, 6 sawyers, 2 coopers, 2 tinsmiths, 4 painters and 1 plumber, who between them managed to turn out enough goods to pay for their upkeep. In 1863, a small spinning mill was also established at the Prison to produce woollen yarns. Although this was

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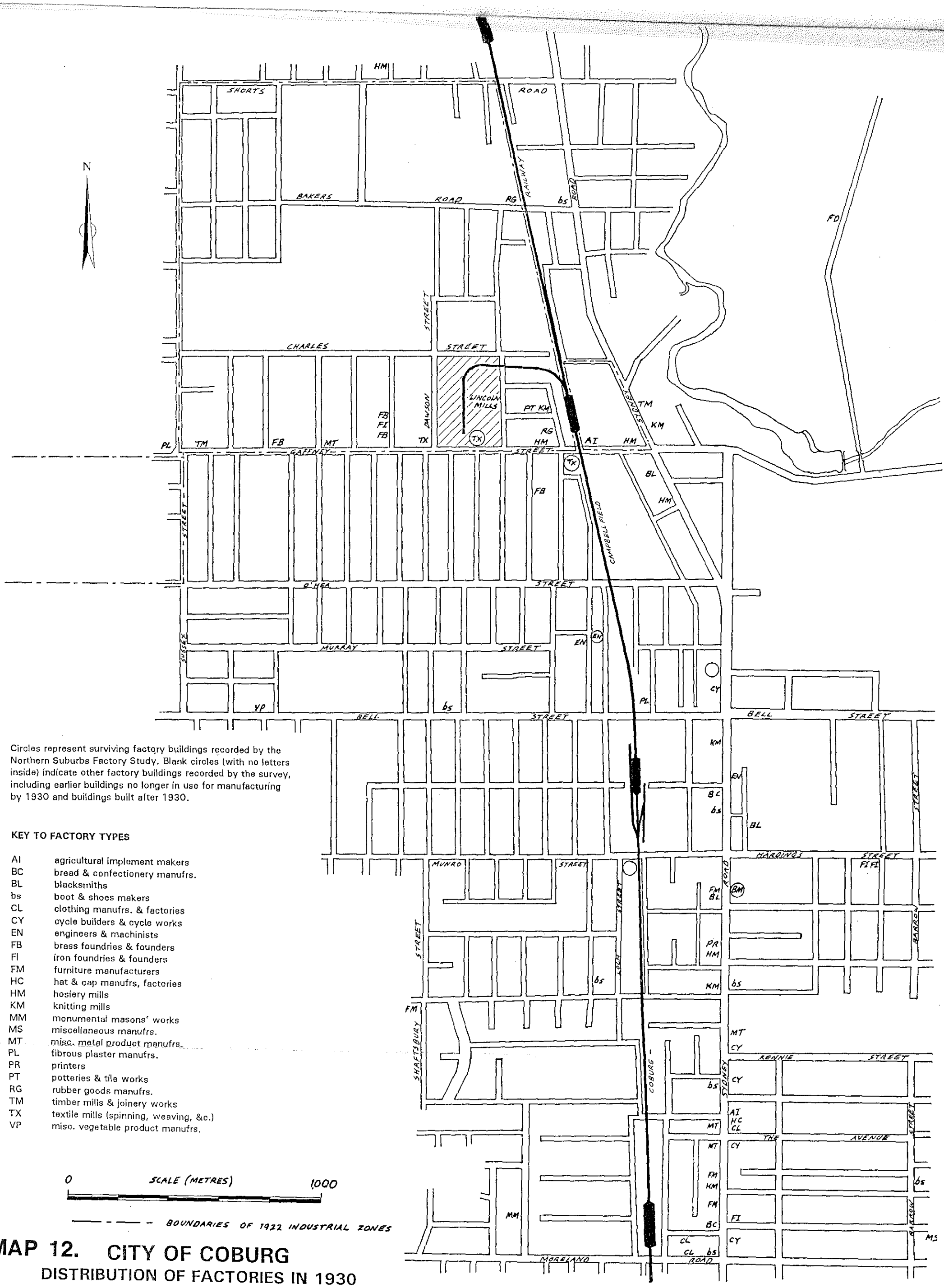
[1] *Coburg Heritage Conservation and Streetscape Study*, 1991, vol.1, pp.8-11; R. Broome, *Coburg: Between Two Creeks*, 1987, pp.34-5.

[2] Broome, 1987, pp.42-3.

[3] Broome. 1987, p.63-66. Figures on occupations were drawn by Broome from the *Victorian Census for 1857*.

[4] *Coburg Heritage Conservation & Streetscape Study*, vol.2; Broome, 1987, pp.66 & 87-88.



Circles represent surviving factory buildings recorded by the Northern Suburbs Factory Study. Blank circles (with no letters inside) indicate other factory buildings recorded by the survey, including earlier buildings no longer in use for manufacturing by 1930 and buildings built after 1930.

KEY TO FACTORY TYPES

AI	agricultural implement makers
BC	bread & confectionery manufrs.
BL	blacksmiths
bs	boot & shoes makers
CL	clothing manufrs. & factories
CY	cycle builders & cycle works
EN	engineers & machinists
FB	brass foundries & founders
FI	iron foundries & founders
FM	furniture manufacturers
HC	hat & cap manufrs, factories
HM	hosiery mills
KM	knitting mills
MM	monumental masons' works
MS	miscellaneous manufrs.
MT	misc. metal product manufrs.
PL	fibrous plaster manufrs.
PR	printers
PT	potteries & tile works
RG	rubber goods manufrs.
TM	timber mills & joinery works
TX	textile mills (spinning, weaving, &c.)
VP	misc. vegetable product manufrs.

0 SCALE (METRES) 1,000

BOUNDARIES OF 1922 INDUSTRIAL ZONES

MAP 12. CITY OF COBURG
DISTRIBUTION OF FACTORIES IN 1930

Compiled by M.S. Churchward from Sands & McDougall Directories for Northern Suburbs Factory Study

only a primitive setup, using hand-powered second-hand machinery, it was the first factory-based woollen mill to operate in Victoria, and can also be regarded, in a sense, as origin of Coburg's textile industry. Manufacturing in the prison provided a new threat to those free settlers who were attempting to establish their own manufacturing businesses in the district. Some felt that prison-made goods provided unfair competition because they were subsidised by the low wages paid to prisoners, however, any competition was probably more perceived than real, because the prison always found it difficult to sell its products direct to the public so most of the output was sold to other Government Departments.[1]

In September 1874, Coburg residents voted overwhealmingly against a proposal to amalgamate the Coburg Road District with the adjacent Shire of Jika Jika, and instead, on the 24th December, Coburg was declared a Shire in its own right.[2] In its first year, three factories were recorded in the Shire. Together they employed 10 men and represented a total investment of only £1,175 in plant and buildings.[3] The Shire rate books at this time show that being warden at the prison was still the most common occupation in Coburg, followed by farmers and market gardeners and quarrymen.[4]

One of the three factories in Coburg at this time was a bacon-curing works established by James and Colin Hutton in Moreland Road in 1872. It was not long after Hutton's bacon-curing works was established that the Shire Council began to receive complaints from neighbours offended by the smell it created. James Hutton subsequently stood for election on the local council, a move which could perhaps be interpreted as an attempt to protect his own interest. In 1880, he became Shire President, but the following year he moved his bacon-works to Preston after further difficulties with the council.

The Shire of Jika, which included Preston, was in a similar position to Coburg at this time, lying just outside the boundaries of the suburban development and also largely rural in character. However, whilst the Shire of Jika was actively encouraging industries of any sort whether noxious, offensive or otherwise and Preston was gaining a reputation for its tanneries, bacon-curing works and piggeries, Coburg chose a different course of development. From the early 1880s, the Coburg Shire consistently refused permits for piggeries, bacon-curing works and tanneries within its boundaries, and licences for slaughter-yards were restricted, as far as possible, to the Newlands area. The Shire, however, had no control over what went on within the walls of Pentridge and it was many years before they were able to get the prison authorities to stop discharging untreated effluent into Merri Creek.[5]

From its earliest years, the Coburg Shire was keen to promote suburban and industrial development of a responsible nature, but it was greatly hindered by the lack of suitable transport links with the city. The Shire had little money to spend on capital works or road maintenance, and its main transport artery, Sydney Road, was still unmade or unsurfaced in some section and degenerated into an impassible quagmire in winter. In September 1884, the long-awaited Brunswick and Coburg railway finally opened. In 1886, a horse tram route was built along Sydney Road by a private company and, from October 1887, this service connected with the Melbourne Tramway & Omnibus Company's new cable tram line from the city to Brunswick, which terminated at Moreland Road, on Coburg's southern boundary. Competition between the tramway and railway brought down passenger fares to the lowest rates in Melbourne, and ensured that by the late 1880s, Coburg was set to experience a building boom. Farms were bought up by speculators and sub-divided for sale as housing blocks, but just as the development was gaining momentum, Melbourne was plunged into financial crisis and the land boom collapsed leaving most of the new estates deserted wastelands inhabited only by goats and Scotch thistles.[6] Despite the promise of new developments, the *Victorian Municipal Directory* of 1890 still described Coburg as '...a pretty suburb, with country lanes and charming little valleys...The district is strictly dairy and

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[1] Broome, *Coburg Between Two Creeks*, 1987, pp.110-1,119,121 & 270-1.
[2] Broome, p.126; *Municipal Directory of Victoria*, 1930, p.312.
[3] *Statistical register of Victoria*, Production, 1874, p.47.
[4] Broome, p.127. Figures from the Coburg Shire Rate Book, 1875-6.
[5] Broome, p.141.
[6] Broome, p.153.

poultry farming, with cultivated paddocks and farm houses, giving it an English rural appearance.'[1]

Despite the rural appearance, an industrial Coburg was gradually emerging. Coburg was already renowned as the largest quarry district in Melbourne, with 23 bluestone quarries in business, employing a total of 85 men and producing 50,000 cubic yards of building stone and crushed road metal each year.[2] New factories were also beginning to appear in the southern part of the shire. In 1890, Browning & Mountain established a hosiery works, employing 20 women. This venture only lasted three years before falling victim the economic depression, but it was significant in being the first of a long line of knitwear factories in what would subsequently become a leading component of Coburg's industrial sector.

In 1894, Passfield and Benton built the Hygienic Bread Factory in Allen Street, with a retail frontage to Sydney Road. Their two-storey factory, designed by local architect Talbot Chinhen, had a ground floor area measuring 80 feet by 228 feet. In 1894, Thomas Passfield took over as sole proprietor. By 1900, he claimed to be the largest employer in Coburg, with over 50 staff, and the largest bread factory in the Southern Hemisphere. The factory by this time was equipped with five large ovens, a 10,000 gallon well, a cool store for 500 kegs of butter, a store room for 6,000 bags of flour and six egg pits capable of holding up to 250,000 eggs at a time, in lime water. As Coburg grew, Passfield's business expanded. Several sons were taken into the partnership, and a number of retail outlets were opened along Sydney Road and in neighbouring suburbs. The firm also built up an extensive home delivery service throughout the northern suburbs. Although the factory building has been demolished, an associated two-storey shop bearing the name 'Hygienic Buildings' on the facade still survives in Sydney Road.[3]

By 1900, the *Statistical Register* listed six factories in Coburg employing a workforce of 63, which was entirely male *(table 25).* The *Sands & McDougall Directory* tells a similar story *(table 26).* Only five factory-based manufacturing businesses in Coburg can be identified from the directory in this year. There were by this time, quite a number of small backyard or semi-retail businesses operated by trades-people such as tailors, seamstresses, bootmakers, blacksmiths and upholsters, but most would have been small one or two person businesses and cannot properly be regarded as 'factories' even though they may have been engaged in 'manufacturing'.

Apart from Passfield's bread factory, other factories operating in Coburg by 1900 included: Charles Bush's furniture factory (est. 1886), W. Heskett's iron foundry, Thomas Hestor's flock mills (est. 1895), and W.E. Cash's plumbing & pipemaking business (est. 1898).[4] As most of these firms were established during the late 1890s, it appears that the few factories that had existed in earlier years had mostly fallen victim to the depression.

One manufacturing establishment that was not recorded as such in either the *Statistical Register* or the *Sands & McDougall Directories* at this time was the Pentridge Prison. During the later part of the 19th century the prison workshops had continued to expand. By 1901, 168 of the 485 prisoners at Pentridge were employed in the workshops. The tannery attached to the bootmakers shop had closed in 1900, but there were still workshops operated by tailors, matmakers, shoemakers, brushmakers, bagmakers, weavers, blacksmiths, stone-cutters, masons, plumbers, fitters, carpenters, bakers, bookbinders, printers, painters and hatmakers. The woollen mill was still operating, although the equipment was subject to frequent breakdowns and in desperate need of replacement. From 1903, flax was grown by the prisoners and in 1905, an oil engine, thresher, breaker and scratcher were installed to process the raw flax into cordage, sacking and coarse linen. This venture was just becoming successful when the machinery and large stocks of stacks were burnt by two separate fires in 1907. In the same year, a galvanised wire netting plant was installed, that became one of the prisons most successful enterprises, employing 35 men. The prison

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[1] Broome, p.152.

[2] *Statistical Register of Victoria,* Production, 1890, Stone Quarries; Broome, pp.130-3.

[3] Broome, p.151; F.G. Miles, *Jubilee History of Brunswick and Illustrated Handbook of Brunswick and Coburg*, 1907, p.107; *The Inception of a City,* City of Coburg, 1922, p.8 (The business was originally established in a shop in Sydney Road in 1888, before the factory was built).

[4] Broome, p.204.

workshops have continued to develop a diverse range of manufacturing enterprises throughout the 20th century, however, the need for additional space has seen all of the original workshop buildings replaced since 1920.[1]

Both housing and industrial development proceeded slowly in Coburg during the first decade of the 20th century. The railway line north of Coburg was closed in 1903 due to accumulating operating losses and was not opened again until 1914, and then only as far as Fawkner. Although the Coburg line had been built with the intention of connecting to the North Eastern Railway at Somerton, the long-term clsure of the northern section of the line meant that Coburg factories had no direct railway link to the north. In 1916, the Sydney Road tram service was electrified, launching Coburg into the modern world, and four years later the train service was also electrified, but the northern part of the municipality remained poorly serviced by public transport of any form.

Between 1900 and 1930, almost all industrial development in Coburg was confined to a corridor about a mile-wide, running north along Sydney Road and the railway line. Obviously, proximity to these major transport routes played a major role in the siteing of industry, but the lack of made roads and services such as reticulated water, sewerage and electricity in the outlying parts of the municipality was at least as important a factor.

Engineering & metal products was one of the first sectors of manufacturing in Coburg to show significant growth during the early twentieth century. Following Brunswick's lead in the iron and steel industry, other founders established themselves in Coburg and a small but significant concentration of brass foundries developed in the vicinity of Gaffney Street. One aspect of the engineering sector that was familiar to many locals was the Coburg cycle building industry. Bicycle shops were a common sight in all suburbs by the 1920s, but Coburg appears to have had an unusually large concentration of such businesses scattered along Sydney Road.[2] In addition, many of these businesses were described in the directories as 'cycle manufacturers', 'cycle works' or 'cycle builders', suggesting that manufacturing was as important a part of such businesses as retailing. Coburg had a strong tradition in cycling, perhaps because of the limited public transport, especially east-west across the municipality, and its large working-class population. The Coburg Cycling Club had a large membership and boosted several Victorian and Australian champions, who no doubt inspired enthusiasm amongst others. The Club's most famous member, Iddo 'Snowy' Munro claimed the Australian Road Championship title in 1909, with a gruelling ride from Warrnambool to Melbourne in world-record time and later went on to compete in the Tour de France.[3]

The Coburg bicycle-building trade was pioneered by Andrew Johnston, a Scotsman and former South Melbourne metal worker, who opened his cycle works in Sydney Road, near Page Street in about 1900. When Snowy Munro won the Warrnambool to Melbourne classic, he was riding a 'Thistle' brand bicycle built by Johnston. A.J. Rowland was another prominent Sydney Road bicycle manufacturer with his well-known 'Eagle' brand cycles.[4]

Following the First World War, other sections of the engineering trade underwent significant expansion in Coburg. In 1922, implement makers Rawlings & Co. established a large factory adjacent to the railway line in Gaffney street, where they produced farm and transport equipment. This well-known firm had previous been based in North Melbourne, and were something of an exception. Whilst Sunshine, Footscray and Spotswood emerged as large centres for agricultural implement making during the early 20th century, Rawlings was the only major factory of this sort to be established anywhere in the northern suburbs. The Invicta Manufacturing Co. Ltd. also opened a factory in Coburg in 1922, where cabinet makers, polishers and mechanics were employed producing gramophones.[5]

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[1] Broome, pp.270-4; *Coburg Heritage Conservation & Streetscape Study*, 1991, vol.1.
[2] *Sands & McDougall Directories*.
[3] Broome, pp.186-7.
[4] Broome, pp. 187 & 216; interview with J.B. Stanton (former Coburg resident and factory foreman), Julv 1991.
[5] Broome, p.218; Vines, 1989, *Western Region Industrial Heritage Study*.

Table 25: Manufacturing in Coburg 1872-1976.

compiled from The Statistical Register of Victoria, 1872-1910; Victorian Year Book, 1935-1950 & Manufacturing in Melbourne, Report of the Technical Advisory Committee, M.M.B.W., 1979, p.39.

Municipality	Year	Number of Manuf.ing Works Recorded	Number of Steam Powered Works	Number of Gas Engine Powered Works	Number of Horse Powered Works	Combined Motive Power Employed h.p.	Total Number of Employees[δ]	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £
Coburg Road Board[1]	1872-73	1	-	-	-	-	5	100	600
Coburg Shire[2]	1874-75	3	-	-	2	2	10	225	950
Coburg Shire	1880-81	3[Φ]	2	-	-	27	19	950	1,210
Coburg Shire	1885-86	2[Φ]	1	-	-	8	15	450	750
Coburg Shire	1890-91	29	4	-	3	28	123	4,135	2,650
Coburg Shire	1896	6	3	1	-	34	34	1,520	1,550
Coburg Shire	1900[Ω]	6[Ω]	3	1	-	36	63	2,180	2,500
Coburg Borough	1910	11					113		
Coburg City	1935-36	92					2,765	327,695	312,756[#]
Coburg City	1940-41	90					3,595	273,917	387,262[#]
Coburg City	1945-56	109					3,488	279,184	496,570[#]
Coburg City	1950-51	200					4,135	954,795	987,344[#]
Coburg City	1971						10,434		
Coburg City	1976						9,950		

NOTES: [1] The Coburg District Road Board, covering most of the present day municipality, was formed on 21 Jan 1869, from the Pentridge District Road Board, but 1872 was the first year in which factory returns for Coburg were published in *The Statistical Register of Victoria*.

[2] The Shire of Coburg was proclaimed on 24 Dec. 1874.

[Φ] All figures for this year exclude details relating to one tannery in Coburg for which separate returns were not published.

[Ω] All figures for this year include details relating to one factory in Boroondara Shire as well as Coburg factories.

[#] Includes value of both land & buildings.

[δ] All employment figures exclude outworkers.

W.E. Cash further expanded his business with Australia-wide sales with his 'United States of Australasia Manufacturing Works' at 152-8 Sydney Road producing virtually anything made out of sheet metal, including sewerage vents, flush pipes, cowls, steel irrigation pipes, bends, spouting and ridging. The Dawn Manufacturing Co. started in a small warehouse in Sutherland Street in 1918, but by the mid-1920s had a large factory in Service Street, where they produced rotary fans, axles, engineering equipment and their famous vices. Their advertisements included such cheeky slogans as 'Coburg the City of Vices' and 'Vices Worth Acquiring'.[1]

In May 1916 the Lincoln Knitting Mills of Lygon Street, East Brunswick, bought a twelve acre site in Gaffney St. Coburg for £2,500 and spent £250,000 building a fully integrated textile works incorporating all stages of wool processing from classing and scouring, through carding, combing, spinning and dying to final knitting of garments. The mills also had a large yarn store, boiler house and electric power generators, which were supplied with coal via a branch siding from the Batman Station. The works opened in 1919, with an initial workforce of 500, which had grown to 610 by 1922 and eventually reached over 1,000. About three-quarters of the employees were women. The Lincoln Mills was comparable in size to the Foy & Gibson's and the Yarra Falls Mills in Collingwood and Abbotsford, but locally is of far more significance, because of the leading role that it played in the development of Coburg's textile industry. The Lincoln Mills always prided itself on being a model employer and in the early 1920s spent £1,000 building staff facilities including a large dining room and canteen, that were heated in winter by piped steam from the boiler house.[2]

The driving force behind the Lincoln Mills development was Neville Rowlands, a former timber worker from the Ovens valley, who is reputed to have gone to England after the First World War to personally convince the giant British textile manufacturer Vickers & Gooch to provide much of the necessary capital. Skilled operators were recruited from the heart of the British textile industry at Bradford, Yorkshire, and brought out to Australia to act as overseers and foremen training other staff recruited locally.[3]

The Lincoln Mills was joined, in 1920, by the Moreland Knitting Mills, built in Moreland Road east, and shortly afterwards by Belworth Hoisery, established in the former Lake Hall. Beaucaire established its first factory on Sydney Road, Coburg North, in 1927, and by 1930 was producing lumber jackets, pullovers, woollen bathers and hundreds of varieties of socks.[4] Other, more unusual, manufacturing enterprises established in Coburg by the 1920s included McNeilage Bros.' glass bottle factory, the Bullergrarook slate finishing works, the Coburg Plasterboard Co. in McKay Street, Green's Timber Mill, and the Rex Wire-Weaving Co. that produced wire mattresses and furniture in a factory on Sydney Road.[5]

The Coburg council played an active role in promoting both industrial and residential development in the municipality during the 1920s. In December 1919, the council reached an agreement for bulk electricity supply from the Melbourne City Council's Spencer Street power station and began the task of providing a reticulated supply to its industries and houses. In March 1920, the council changed its method of calculating rates from Net Annual Value (NAV), a system based on the annual rental value of each property, to Unimproved Capital Value (UCV), a newer system designed to stimulate growth by basing the rates on the value of the land alone irrespective of whether or not there were any buildings on it. By comparison, the more conservative Fitzroy City Council was still debating the merits of changing from NAV to the UCV system in 1945.[6]

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[1] Broome, pp.218-9; *The Inception of a City*, 1922.
[2] Broome, pp.203, 217-8; *The Inception of a City*, pp.16-17.
[3] interview with J.B. Stanton (former Coburg, resident), July 1991.
[4] Broome, pp.203 & 245.
[5] Broome, pp.218-9; *Sands & McDougall Directories.*
[6] *Fitzroy Municipal Ratings Survey*, 1945

Table 26: A Comparison of Factory & Non-Factory Manufacturing in Coburg 1870, 1900 & 1930.
compiled from the Sands & McDougall Directories.

COBURG - FACTORY MANUFACTURING

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930	
	1870	1900	1930	COBURG	NTH. COBURG & PASCOE V.
FOOD, DRINKS & TOBACCO					
cake manufrs.	-	-	1	1	-
manufacturing confectioners	-	-	1	-	1
wholesale bakers & bread baking co.s	-	1	2	2	-
subtotals	-	*1*	*4*	*3*	*1*
CLOTHING & TEXTILES					
hat manufrs.	-	-	1	1	-
costume manufrs.	-	-	1	1	-
shirt manufrs.	-	-	1	1	-
clothing manufrs. (unspecified)	-	-	2	1	1
clothing factories (unspecified)	-	-	1	1	-
textile mills	-	-	2	2	-
knitted goods manufrs.	-	-	1	1	-
knitting mills & works	-	-	5	4	1
hosiery mills	-	-	3	3	-
hosiery manufrs.	-	-	3	2	1
subtotals	-	-	*20*	*16*	*4*
FOOTWEAR					
subtotals	-	-	-	-	-
ENGINEERING & METAL PRODUCTS					
coachbuilders	1	-	-	-	-
agricultural implement makers	-	-	1	1	-
engineers	-	2	1	1	-
iron founders	-	-	1	1	-
iron foundries	-	-	2	1	1
oven manufrs.	-	-	1	1	-
brass founders	-	-	4	1	3
wire works	-	-	1	1	-
wire mattress manufrs.	-	-	1	1	-
mtr. spring manufrs.	-	-	1	1	-
cycle manufrs.	-	-	2	2	-
cycle works	-	-	2	2	-
subtotals	*1*	*2*	*17*	*13*	*4*

COBURG - RETAIL MANUFACTURING, SELF-EMPLOYED & MANUFACTURING EMPLOYEES

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930	
	1870	1900	1930	COBURG	NTH. COBURG & PASCOE V.
FOOD, DRINKS & TOBACCO					
bakers	2	4	11	9	2
confectioners	-	5	58	43	15
pastrycooks	-	-	9	8	1
subtotals	*2*	*9*	*78*	*60*	*18*
CLOTHING & TEXTILES					
milliners	-	-	6	6	-
tailors	2	-	8	8	-
dressmakers	1	8	7	6	1
costumiers	-	1	12	12	-
underclothing makers	-	-	1	1	-
fur & fabric dyers	-	-	2	2	-
subtotals	*3*	*9*	*36*	*35*	*1*
FOOTWEAR					
boot makers	6	6	13	11	2
boot repairers	-	-	28	25	3
subtotals	*6*	*6*	*41*	*36*	*5*
ENGINEERING & METAL PRODUCTS					
wheelwrights	1	-	-	-	-
motor mechanics & engineers	-	-	9	6	3
blacksmiths	1	6	4	3	1
farriers & shoeing forges	1	1	1	1	-
locksmiths	-	1	-	-	-
watchmakers	-	-	1	1	-
jewellers	-	1	1	1	-
cutlers	-	1	1	1	-
electrical engineers	-	-	1	1	-
cycle builders	-	1	1	1	-
subtotals	*3*	*11*	*19*	*15*	*4*

	TOTAL NUMBER OF FACTORIES			DISTRIBUTION OF FACTORIES IN 1930	
	1870	1900	1930	COBURG	NTH. COBURG & PASCOE V.
NOXIOUS TRADES & ANIMAL BY-PRODUCTS					
soap manufrs.	-	1	-	-	-
subtotals	-	*1*	-	-	-
TIMBER PRODUCTS & FURNITURE					
blind manufrs.	-	-	1	1	-
furniture manufrs. (unspecified)	-	-	1	1	-
subtotals	-	-	*2*	*2*	-
BUILDING PRODUCTS					
sewerage pipe manufrs.	-	-	1	1	-
tile manufrs.	-	-	1	-	1
fibrous plaster manufacturers	-	-	2	2	-
monumental masons works	-	-	2	2	-
stone crushing works	-	-	2	-	2
(*stone quarries - not in subtotal	1?	-?	5	-	5)
subtotals	-	-	*8*	*5*	*3*
CHEMICALS					
subtotals	-	-	-	-	-
OTHER VEGETABLE PRODUCTS					
printers	-	-	2	2	-
rope works	-	1	-	-	-
cork manufrs.	-	-	1	-	1
chaff works	1	-	-	-	-
subtotals	*1*	*1*	*3*	*2*	*1*
MISCELLANEOUS GOODS					
rubber goods manufrs.	-	-	2	-	2
artificial flower manufrs.	-	-	1	1	-
lamp manufrs.	-	-	1	1	-
paint brush manufrs.	-	-	1	1	-
subtotals	-	-	*5*	*3*	*2*
TOTALS	2	5	59	44	15

* Note: Not all quarries appear to be listed in the earlier directories.

	TOTAL NUMBER OF ENTRIES			DISTRIBUTION OF ENTRIES IN 1930	
	1870	1900	1930	COBURG	NTH. COBURG & PASCOE V.
OTHER ANIMAL BY-PRODUCTS					
saddlers	2	1	1	1	-
subtotals	*2*	*1*	*1*	*1*	-
TIMBER PRODUCTS & FURNITURE					
joiners	-	-	2	1	1
cabinet makers	-	-	1	1	-
upholsterers	-	1	-	-	-
subtotals	-	*1*	*3*	*2*	*1*
BUILDING PRODUCTS					
subtotals	-	-	-	-	-
CHEMICALS					
subtotals	-	-	-	-	-
OTHER VEGETABLE PRODUCTS					
rope makers	-	1	-	-	-
subtotals	-	*1*	-	-	-
MISCELLANEOUS					
subtotals	-	-	-	-	-
TOTALS	16	38	178	149	29

After just seven years as a Borough, and ten years as a Town, the Coburg Council applied for City status as soon as its annual income reached the required £20,000, and on 1 April 1922, the City of Coburg was proclaimed.[1] The council celebrated the occasion by publishing a booklet entitled 'The Inception of a City'. This publication incorporated descriptions and photographs of Coburg's public amenities, public transport, parks and model industries and houses. It also promoted 'rare opportunities for the establishment of industries' with 'reasonably priced sites and cheap electric power from the municipality's [electricity] undertaking'. At the same time, the Council proclaimed three industrial zones so that home builders could select a site with the confidence of knowing that no future factories would be allowed to be built in their neighbourhood. The largest of these three industrial zones occupied the area bounded by Gaffney and Sussex Streets, Shorts Road and the railway; whilst the second was bounded by Gaffney, O'Hea and Sussex Streets and Cumberland Road. The third covered six acre east of Batman Station, adjacent to the railway line *(map 12)*.

Two of the industrial zones were simply a recognition of the industrial concentration that had already occurred, but this still represents the earliest known attempt by a municipal council in the northern suburbs to develop town planning regulations in order to control the location of industrial development, preceeding by five years even the 1929 Report of the Metropolitan Town Planning Commission. It fitted well with the City of Coburg's motto 'A place for everything, and everything in its place'. It seems surprising that the Sydney Road corridor was not included as one of the industrial zones particularly as there was no clear attempt made to resist the opening of future factories fronting onto Sydney Road.

Along with its industrial zoning, the Coburg Council continued to oppose any industries that could be regarded as offensive in nature. Thus, when the Electric Installation Company applied for a licence in 1923 to erect a factory to produce of electrical components, the application was initially refused, until it was revealed that the company planned only to be assembling and not fully manufacturing the parts.[2]

The combination of a council actively encouraging industry of a 'clean' nature, and the established manufacturing infrastructure connected with the enourmous influence of the Lincoln Mills, led inexorably to the expansion of the textile industry in Coburg. Lincoln Mills carried out all stages of manufacture to finished garments on the one site, but it also maintained a considerable surplus spinning capacity enabling it to supply yarn to other weaving, kniting and hosiery manufacturers in Melbourne. Several Lincoln trained staff went on to establish their own businesses, evidently with the firm's blessing, and so companies such as Hilton Hosiery, Union Knitting Mills and Kaora Worsted Mills were able to come into being with the help of raw material and technical expertise provided by Lincoln.

Capper, for example, left the Lincoln Mills during the late 1920s to set up his own factory, beginning in a 40 ft. by 80 ft. corrugated-iron shed in his backyard in Gaffney Street with assistance from his wife and two sons. They produced men's hoisery using woollen thread bought from the Lincoln Mills. In 1930, Harry Anderson followed suit, using £200 of savings from his job as a skilled mechanic at the Lincoln Mills to purchase two knitting machines, which he installed in a rented first-floor gymnasium at the corner of Munro Street and Sydney Road. From an initial part-time operation, Anderson's business expanded rapidly taking three brothers Jack, Jim and Alex into partnership. By 1940 they had a factory in Gaffney Street employing over 100 people and their 'Cotswold' and 'Nightingale' brand hoisery had won an Australia-wide reputation. On a more senior level, managers and directors were also involved in new enterprises. The son of John Kellet, manager at the Lincoln Mills, established the Moorhouse Waste Mills, in North Melbourne, to process noyles produced as a by-product during the scouring process, whilst John Kellet himself was persuaded to take up a number of shares in the float of Hilton Hoisery. Neville Rowland, founder of the Lincoln Mills, also left to established the Port Phillip Mills in Williamstown.[3]

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[1] Municipal Directory, 1930; Broome (1987), p. 7

[2] Broome, p.219.

[3] Broome, p.245; interview with J.B. Stanton (former foreman at the Lincoln Mills), July 1991.

By the early 1930s, textiles had become the major manufacturing industry in Coburg, with a combined workforce of over 2,000, most of whom were women, and some 20 factories in operation, compared with only one in 1900. Alongside the Lincoln Mills, one of the major stimuluses in this development had been substantial increases in the Commonwealth tariffs on textiles and clothing in 1929. Coburg, by this time, had a significantly higher proportion of both its adult female and male populations employed in manufacturing than Melbourne as a whole. It had also become one of the leading centres of textile manufacture in Australia, a position that it was to retain until the late 1970s.[1]

Analysis of Surviving Factory Buildings in Coburg

Like Preston, Coburg has comparatively few surviving pre-1931 factory buildings, and of those that do survive mostly date from the post First World War years (*table 27*). Only the engineering & metal products and clothing & textiles sectors have more than one surviving pre-1931 factory building, though this is hardly surprising since they are the only two sectors of manufacturing in Coburg that had experienced significant growth prior to 1930.

Map 12 shows the distribution of the main factories in Coburg in 1930, based on entries in the *Sands & McDougall Directories*. From this it is clear that in 1930, most of Coburg's factories were still concentrated along either side of Sydney Road. Gaffney Street was beginning to develop a concentration of factories also, but the Lincoln Mills and Rawlings implement works were the only major plants as yet located within the Council's 1922 industrial zones, and both had been established before the zones were proclaimed. There was, as yet, surprisingly little manufacturing development in the major cross streets such as Bell Street, Munro Street or Moreland Road or immediately adjacent to the railway line. Likewise, no significant manufacturing development had taken place north of Shorts Road in Fawkner.

Although Coburg had a greater number of factories and a larger overall manufacturing workforce than either Preston or Northcote in 1930, Preston had largely caught up by the early 1950s and later went on to surpass Coburg in its manufacturing industries (compare *tables 15, 19 & 25*). Nevertheless, much of the industrial area of both Coburg and Preston remain dominated by the large-scale industrial developments of the post Second World War period. In both suburbs, the availability of large clear sites continued to attract a significant number of major new manufacturing complexes that have helped to shape the present appearance of these suburbs' industrial zones.

Major manufacturing plants built in Coburg since 1930 have included the Union Knitting Mills (1936), Spicer Paper Mills (c.1940), Tibaldi Smallgoods (1952), Golden Top Bakeries (1957), J.Gadsden's can-making division (1957), Berger Paints plant (1959), Armitage Shanks Potteries (1959), John McIlwraith Plumbing Supplies (1961), Davies & Baird Steel Foundry (which moved from Brunswick in 1962) and the Commonwealth Government Clothing Factory (established in 1970 on the former Rawlings implement works site). In 1961, Kodak Australasia moved its main Australian manufacturing plant from the crowded Abbotsford site to an extensive 75 acre site between Elizabeth Street and Merri Creek in north Coburg, where a peak of 2,000 were employed.[2]

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[1] Broome, p.245; *Sands & McDougall Directories*; see also table 9.2???

[2] Broome, pp.307-15; *Coburg Heritage Conservation & Streetscape Study*, vol.1, p.40.

Table 27: Analysis of Surviving Factory Buildings in Coburg and Comparison with Historical Distribution by Factory Type.

compiled from Sands & McDougall's Directory of Victoria for 1930 & Summary List of Sites Examined

MANUFACTURING SECTOR	Sands & McDougall's Directory of Victoria - 1930		Factory Study - Surviving Factory Buildings Recorded in Coburg		
	Number of Factories in Coburg	Proportion of Total	Number Built pre 1931	Proportion of pre 1931 Total	Number Built post 1930
Food & Drinks	4	6.8%	-	0 %	-
Clothing & Textiles	20	34.0%	3	50 %	2
Footwear	-	0.0%	-	0 %	-
Engineering & Metal Products	17	28.8%	2	33 %	-
Noxious Trades & Animal By-products	-	0.0%	-	0 %	-
Timber Products & Furniture	2	3.4%	-	0 %	-
Building Materials	8	13.5%	-	0 %	-
Chemicals	-	0.0%	-	0 %	-
Other Vegetable Products	3	5.1%	1	17 %	-
Miscellaneous Products	5	8.4%	-	0 %	-
TOTALS	59	100 %	6	100 %	2

THE NORTH-EAST TRANSPORT CORRIDOR TOWNS

In general, the most important manufacturing industries in the North-East corridor towns during the 19th and early 20th centuries, were flour mills, brickworks, sawmills and butter factories *(table 28)*. Nearly all of the towns along the corridor had at least one establishment in each of these categories at some stage, and in each town, the development of these industries generally began in the same order. Other types of factories such as tanneries, cordial factories, engineering works and breweries were also important to the economies of particular towns, but were never as widespread as the former four industries.

The only two North-East towns to develop into significant manufacturing centres were Wangaratta and Benalla, although it is surprising that many of the smaller North-East towns had a greater number of factories relative to their population size than comparatively industrialised suburbs in Melbourne such as Coburg and Brunswick. On average, factories in North-East corridor towns were smaller in size than Melbourne factories in terms of number of employees, investment and output. During the early 20th century factories processing primary produce began to decline in these towns (which was part of a more general State-wide trend) leaving many centres with few alternative industries in the manufacturing sector.

Because of the number of towns involved in this section, it is impossible to examine in detail the manufacturing history of each town on its own. Rather this section will cover manufacturing in the North-East corridor towns on a more general basis by drawing out themes common to a number of towns before discussing the individual history of a few particularly significant factories.

Flourrnilling

Flour milling in the North-East corridor towns developed in four main stages spread over the years 1840-1849, 1852-1864, 1872-1875 and 1880 -1889. During each of these periods, different forces were at play influencing the development of the industry.

The development of the flour milling industry commenced in the farming districts closest to the northern outskirts of Melbourne during the early 1840s and moved progressively northwards throughout the decade, following the spread of wheat growing. The Carome Mill built on the banks of the Plenty river near Whittlesea, in 1841, was the first water-powered flour mill to operate in Victoria and only the third flour mill of any type to commence operation in the young colony. The following year it was joined by a second water-powered flour mill, the Janefield Mill, built several miles downstream.[1]

By 1847, the first flour mills in Kilmore and Seymour had been built, and by 1849, Albury had its first flour mill. All of these mills were comparatively small, even by 19th century standards, as both the supply of wheat and the availability of suitable markets were severely limited by the slow and expensive bullock or horse-drawn drays which then provided the only means of transport. Robert Allen's flour mill at Kilmore, for example, was initially powered by a small seven horsepower steam engine built by Langlands & Co. of Melbourne (believed to be the first steam engine built in Victoria for manufacturing), whilst the Carome and Janefield Mills each had a single pair of stones, with capacities of five bushels (135 kg) and eight bushels (180 kg) per hour, respectively.[2]

The major stimulus for the second phase of flour milling development along the North-East corridor was undoubtably the discovery of gold at Reid's Creek (Beechworth) in March 1852. The subsequent rushes to the Ovens valley goldfields not only greatly increased traffic along the main North-East road but also provided a large population, isolated from ports and willing to purchase large quantities of flour at almost any price. Within five years, a further nine flour mills had been built at Plenty, Thomastown, Campbellfield, Seymour, Benalla and Wangaratta. This rapid

[1] Dight's Mill in Abbotsford was probably completed before the Carome Mill but did not begin operating until 1843. (see discussion in Collingwood section)

[2] J.W. Payne, *A Centennary History of the Whittlesea Shire,* Lowden, Kilmore 1975, pp.134-140; Lewis & Peggy Jones, *The Flour Mills of Victoria*, 1990, pp. 94-105, 189-217 & 306-330.

expansion in flour milling continued throughout most of the early 1860s, so that by 1870, there were seven flour mills in the Plenty Valley and on the plains between Melbourne and Kilmore, and another eleven in the towns further north *(tables 28 & 29).*[1]

For those millers who managed their business well, these were extremely profitable years. Prices for flour were quoted as high as £21 - £30 per ton during the early 1860s and only fell to £9 per ton in 1867. For two of the North-East millers at least, the profits earned during these years enabled them to invest in new mills establishing modest empires for themselves. After James Maxfield acquired Robert Allen's Kilmore flour mill, in 1853, demand was so strong that he had the mill extended in 1859, installing a larger steam engine and additional machinery. In 1855, he built his second flour mill at Seymour and by 1862, was able to build a third mill in Broadford, at a cost of £6,000.[2] Meanwhile, further north at Wangaratta, John Burrows and Richard Tomlins built a steam flour mill near the banks of the Ovens River.[3] In 1866, Burrows bought his partner out, then leased the mill out to another local miller before moving to Barnawartha where he purchased the 'Indigo Flour Mills'. In partnership with his sons, Burrows would subsequently go on to own other flour mills at Albury, Beechworth, and Chiltern, making them probably the most successful milling family in North-East Victoria.[4]

During the 1860s, healthy demand from gold town populations helped to consolidate the flour milling industry in the north-east corridor towns north of Seymour. However, the flour millers further south were coming under increasing strain. By the early 1860s, the wheat crop in the Plenty Valley and on the plains just north of Melbourne began to fail under the onslaught of rust and caterpillars. Farmers were turning instead to hay growing and cattle raising. With the collapse of flour prices as gold mania eased, flour millers in these areas found it impossible to survive. Local wheat supplies were too limited to keep their mills operating continuously but transport costs were still too high to bring in wheat from further afield.

To make matters worse, the water-powered mills on the Plenty River were facing a loss of water supply as the Sewerage and Water Commission had begun diverting water into the Yan Yean Reservoir in 1857 for Melbourne's water supply. When one miller, Moses Thomas, built a dam across the river in an attempt to better control the irregular flows, he was sued by Abraham Willis who owned the Carome Mill a mile downstream. Thomas managed to successfully defend himself on the grounds that he had actually improved the water supply to other millers, but he was not so successful with the Government. After numerous letters, complaints and petitions, Willis was finally awarded £600 compensation by the government for his loss of income, but a similar claim for £5,300 by Thomas was dismissed. In 1868, Willis's Carome Mill was destroyed by a fire in suspicious circumstances and soon afterwards Thomas's mill also closed. The Janefield Mill, further downstream, had already closed in 1862, and the machinery from it was subsequently transferred to the Hurlstone's mill in Preston.[5]

Unlike the later mills built in the North-East corridor towns, only James Maxfield's mill at Kilmore survived into recent years. The Victorian flour milling historian, Lewis Jones records that this mill building was still standing in 1985 after having spent a number of years as an antique market, but it could not be located during this study.[6]

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[1] *Statistical Register of Victoria,* 1870, Production, pp. 31-2.

[2] Jones, *The Flour Mills of Victoria*, pp.105-6 &191

[3] According to Whittaker, 1963, p.167, when Burrows & Tomlins first arrived in Wangaratta, the two existing flourmillers, fearing competition, managed to persuade the local sawmiller to raise the price of his timber to the newcomers. Unperturbed, Burrows & Tomlin instead set up a sawmill with their steam engine, and within 12 months had not only milled enough timber for their flourmill, but had also sold enough to pay for their new mill out of the profits.

[4] Jones, pp. 311-5, 319-20 & 325-7.

[5] Jones, pp. 40 & 94-9; Payne, pp. 134-9

[6] Jones, p. 105

Table 28: Distribution of Factories in the North-East Transport Corridor Towns, 1870-1910. *compiled from the Statistical Register or Victoria.*

YEAR	FACTORY TYPE	Broadmeadows	Kilmore	Broadford	Seymour	Euroa	Violet Town	Benalla	Wangaratta	Chiltern	Wodonga	Total
1870-71	flourmills		2	1	2			2	4			11
	brewereies		1		1			1	2			5
	brickworks	2	2		1			2	4	3		14
	other factories		8	1	6			7	9		1	31
	total - all factories	2	13	2	10			12	19	3	1	61
1880-81	flourmills		1		2			4	3	2		12
	breweries		1		1			1	1	1		5
	tanneries, fellmongers		1	1					1			3
	brickworks				1			1	1	1		4
	soap & candle works								1			1
	tobacco works								1			1
	other factories		4	2	9	5		3	2			25
	total - all factories		7	3	13	5		9	10	4		51
1890-91	flourmills		1		2	1		3	2		1	10
	breweries		1		1			1	1		1	5
	tanneries, fellmongers			1	1				2		1	5
	brickworks		2		3	1		3	2	1		12
	sawmills			3		13		2				18
	other factories	3	9	1	24	16		10	6	5	1	75
	total - all factories	3	13	5	31	31		19	13	6	4	125
1900	flourmills				1	1		3	2	1		8
	breweries							1	1	1		3
	tanneries, fellmongers		1	1					1		1	4
	brickworks	1				1		1	3		1	7
	sawmills			1		1		2				4
	bacon & ham works		1						1			2
	butter & cheese factories, creameries		1	1	1	5	5	11	1			25
	soap & candle works								1			1
	gas works				1			1	1			3
	other factories	1	3	1	4	6		5	13	3	2	38
	total - all factories	2	6	4	7	14	5	24	24	5	4	94
1910	**total - all factories**		8	4	7	10	2	17	28	4	2	82

The third phase of flour milling development in the North-East transport corridor appears to have been prompted, at least in part, by the construction of the North-East Railway from Melbourne to Wodonga between 1870 and 1874. As had been the case with the construction of the highway, there was considerable debate before construction started regarding the route that this railway should take out of Melbourne. One proposal suggested that the abandoned tramway built during the 1850s along the pipeline track to the Yan Yean reservoir should be reconstructed as the first section of the North-East railway, taking the line northwards through Northcote, Preston and Whittlesea to Kilmore. Had this eventuated the course of manufacturing development in Melbourne's northern suburbs may well have been different. However, in the end the Government elected to use a private railway that had already been constructed from North Melbourne to Essendon as the first section of the line. Part of the reason for this decision was that this route gave the Government line direct access to the Newmarket saleyards. Eventually in 1927, a new section of line was built from Sunshine to Broadmeadows, and Victoria's main North-East Railway then left the city not by the northern, but by the western suburbs.[1]

In 1872, the year the railway reached Seymour, John and James Reilly completed a flour mill at the corner of Nunn and Church Streets, Benalla. These enterprising brothers had trained as milling engineers in Cork, Ireland, before immigrating to Australia in 1869. They had operated mills at Fitzroy (1869-71), Kilmore (1871-2) and Rushworth (1870) before building the Benalla mill, and James Reilly subsequently went on to build further mills at Murchison (1874) and Tatura (1880) with his sons.[2]

In 1873, Jared Graham opened a flour mill in Kirkland Avenue, Euroa, and the following year, Robert Brown opened the first flour mill at Violet Town, just 30 chains (600 m) from the railway station. Existing flour mills in these towns also received a boost from the railway. At Benalla, William Maginnis, who had bought Richard Clark's mill in 1869, found that the new railway acted like a giant magnet drawing farmers' waggons laden with sacks of wheat from as far afield as Yarrawonga.[3] This important period of flour milling in the North-East is the best represented by surviving buildings with both the Reilly Brothers' and Jared Graham's mills surviving with few external alternations. Whilst the Reilly's mill is of the typical multistorey 19th century form, Graham's mill building is more unusual, having apparently a single storey from the street frontage. However, this is due to later alterations. The rear of the building reveals the typical three storey arrangement with the bottom floor being cut back from the river bank to form a partial basement.

The final phase of flour milling development in the North-East corridor towns was prompted largely by the introduction of new roller-milling technology during the early 1880s. The new mill built at Chiltern in 1878, was one of the first flour mills in Victoria to be fitted with roller milling plant and was named the 'Hungarian Patent Roller Mills' after the country where the new technology originated. The Reilly Brothers also installed roller milling equipment at Benalla in 1882 or 1885, and Burrows' 'Indigo Flour Mill', at Barnawartha, was similarly equipped in 1881 and 1884.[4]

The new roller technology was not only more efficient than traditional stone milling, but also produced a finer product that commanded a premium price. It was, however, expensive to install and thus only increased the difficulties for smaller mills in marginal wheat growing districts. As wheat farming in Victoria gradually shifted northwards and westwards, so did the location of flour milling. Whereas in 1870 almost half the flour mills in the North-East corridor towns had been located in or south of Euroa, by 1900 only one quarter of the eight mills still operating were in this marginal country and they were all in Seymour or Euroa. There were no flour mills left in Kilmore or further south except in the city itself. In Euroa and Benalla two flour mills had closed during the 1890s, and were converted into a brewery and a butter factory.

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[1] R.J. Harrigan, *The Victorian Railways to '62*, Melbourne 1963, pp.65-7, 87-8 & 285-7.
[2] Jones, pp. 47-8. 105, 194-5 & 317.
[3] Dunlop, 1973, p.81; Jones, pp. 206, 215, 316.
[4] Jones, pp.325, 327-8

Table 29: Flourmilling in North-East Corridor Towns & Shires 1870-1900.
compiled from The Statistical Register of Victoria, 1870-1900.

Municipality	Year	Number of Steam Flourmills	Combined Power of Steam Engines h.p.	Type of Machinery Used		Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £	Quantity of Grain Processed bushels	Quantity of Flour Produced tons
				No. Pairs of Stones	No. Sets of Rollers					
Kilmore	1870-71	2	24	5	-	8	1,250	2,450	35,000	700
Seymour	1870-71	2	18	5	-	7	2,400	2,100	27,500	600
Seymour	1880-81	2	18	5	-	5	1,400	750	30,200	630
Seymour	1890-91	2	28	2	7	11	9,000	1,500	28,650	573
Benalla	1870-71	2	26	4	-	7	2,000	2,900	55,000	1,000
Benalla	1880-81	4	52	10	-	14	2,400	1,550	110,500	2,280
Benalla	1890-91	3	90	8	11	28	10,500	1,900	170,500	3,590
Benalla	1896	3	90	-	22	23	10,700	1,950	116,519	2,377
Benalla	1900	3	125	4	30	23	11,000	2,000	184,077	3,735
Wangaratta	1870-71	4	67	13	-	15	6,400	8,100	162,000	3,750
Wangaratta	1880-81	3	75	12	-	19	3,500	3,400	220,980	4,900
Wangaratta	1890-91	2	105	-	26	13	9,000	3,700	294,000	6,500
Wangaratta	1896	2	155	-	23	13	5,500	2,800	120,278	2,700
Wangaratta	1900	2	155	-	23	15	6,500	3,700	211,800	4,386
Chiltern	1880-81	2	38	7	-	9	16,000	2,500	58,540	1,250
Chiltern	1890-91	2	40	-	19	12	6,000	2,200	70,000	1,330

Those mills that did survive after 1900, came to depend increasingly on wheat supplies from New South Wales and strong export markets for their products, for which access to railway for transportation was vital.[1] At Euroa, Graham's flour mill closed in 1917, whilst at Benalla, the Reilly's mill managed to survive in operation until 1932. At Wangaratta, the two surviving flour mills consolidated their position during the early 20th century, increasing their combined output from 4,400 tons a year in 1900 to 15,840 tons a year by 1932.[2] One of these mills moved to new premises in Aumatta Street in 1952 where it was described as 'one of the most modern mills of its size in Australia', but both closed in 1961 under the Flour milling Industry Rehabilitation Scheme. The buildings were subsequently demolished, a common fate for 'rehabilitated' mills and seen by some as a scheme by a few large metropolitan millers to eliminate competition by buying out small concernes and scrapping their equipment.[3]

Further north, John Burrows & Co. rationalised their milling activities. In 1892, they extended the capacity of their Albury mill in Dean Street, and the Chiltern and Barnawartha mills were closed down soon afterwards. The Albury mill was relocated closer to the railway line in Young Street in 1910 and continued as a family company until sold to Bunge (Aust.) Ltd, in 1946, who continue to operate it today.[4]

Brickworks

Like flour mills, brickworks were a common feature of almost every town in the North-East corridor during the late 19th century, however, it would be difficult to describe most of these as true factories. By 1870, there were 14 brickworks listed in the *Statistical Register* for the towns from Broadmeadows to Chiltern, but most of these, like the early metropolitan brickyards, were no more than a paddock where clay was dug from a small pit and moulded into bricks by hand, before being fired in a simple open stack. With the exception of one brickworks at Kilmore, all of the rest were using manual power only in 1870. The average output of all 14 works was only 153,000 bricks a year compared to 500,000 for Brunswick's 44 brickwork and the average number of people employed was only three *(see table 28).*[5]

By 1876, Wangaratta, Chiltern and Benalla all had some horse-powered machinery in use, but none of the North-East brickworks were steam-powered before 1900. It is not clear to what extent the opening of the railway affected the individual brickworks, however, brickworks overall declined from the 14 in 1870 to only 4 in 1880 suggesting the reduction of freight costs may have made the importion of city bricks a more economic proposition than local manufacture. Contemporary reports indicate that the larger Brunswick brickyards such as John Wilsmore's works and the Norfolk and Egerton Brick and Tile Works, were doing 'a large country trade...all over Victoria', but they do not indicate what share of the market they had gained.[6] Furthermore, the adoption of mechanized brick production and Hoffman Kilns, required large capital investment that was beyond the means of most country brickmakers. In 1900 the average investment in plant, machinery and buildings at metropolitan brickworks was £8,135, whilst at Wangaratta, the three operating brickworks had only £280 worth between them.

The number of brickworks in the north east corridor towns increased during the 1880s as country brickmakers shared in the building boom and railway contracts, however, by 1900 the number had again fallen to seven. In many cases, brickworks in the north east, like many others in smaller

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[1] *Statistical Register of Victoria,* 1870 & 1890, Production; Dunlop, 1973, p.81; Parsons, & Linge both provide a more general discussion on the technological changes that were occurring in the Victorian flourmilling industry during the 1880s and the impact that this was having on the location of flourmills.

[2] *Statistical Register of Victoria,* 1900, Production; Jones, pp.311 & 315.

[3] Jones, p.67; Between 1956 and 1976, 28 of Victoria's 37 surviving flour mills were closed down under the Rehabilitation Scheme, representing 85% of all closures in that period. For many of the smaller country millers being 'bought out' represented a more desireable outcome than simply being forced out of business by declining sales and accumulating losses.

[4] Jones, pp.311-14 & 319-20.

[5] *Statistical Register of Victoria,* 1870, Production

[6] Sutherland, 1888, vol. 2, pp.656 & 660.

country centres, operated only intermittently, expanding and contracting to serve specific orders and major building contracts such as a railway construction project or a new flour mill.[1]

Typical of these small country brickworks, and the only suviving brickworks in the north east corridor towns, is the Chiltern works, which began about 1900 although a clay pit and hand moulding brickyard probably existed on the site much earlier. The works used Scotch clamps and down draft kilns, which could be easily reconstructed or enlarged to increase production, and in later years, an edge runner clay crushing plant and two extrusion mills powered by electric motors, were used to produce semi-plastic, wire-cut bricks. As late and the 1970s, the works was being operated for a few weeks at a time for specific building projects.[2]

Sawmilling

Sawmilling was probably one of the first industrial activities conducted in country settlements, being developed as soon as pioneer slab huts were replaced by timber-framed, weatherboard-clad buildings. Like Flour milling, sawmilling was one of the first industries in Victoria to wildely adopt steam power. However, unlike early flour milling with its solid multi-storied bluestone or brick buildings, early timber milling was generally carried out on portable makeshift sawbenches or 'spot' mills with, at best, a rough lean-to with a shingled roof as a building. It is indicative of this situation that sawmills were not separately listed in the *Statistical Register* until 1890, by which time there were already 18 operating in the shires along the north-east transport corridor (*table 30*).

By far the greatest number of sawmills recorded at this time was in the Euroa Shire, however, care needs to be taken in interpreting these figures because obviously not all the mills were located in the town itself. Sawmilling was an industrial activity scattered throughout the shire, with some mills located in the Strathbogie ranges where they were closer to the better stands of fine peppermint timber, whilst other mill owners preferred to be located in the town close to the railway. It also appears that some of the sawmills listed in towns were firewood mills cutting locally sourced box and red gum into firewood of the Melbourne market, rather than sawn timber.[3]

The three sawmills operating in the Broadford district in the early 1890s were getting timber from the Mt. Disappointment and Tallarook forests. Sidings on the North East railway at Broadford and Wandong were served by narrow-gauge timber tramways bringing logs from the forest and sawn timber from bush sawmills for transhipment. The Comet Mill, located on the northern slopes of the Great Dividing Range, was one of the largest. It had its own narrow gauge steam locomotive that hauled sawn timber over an 8 km tramway to the Wandong siding. Other sawmills were also connected to this system of tramways and a major sawmill, timber seasoning works and joinery was erected at Wandong in 1884-5, by the Australian Seasoned Timber Co.[1] This company at one stage owned virtually the whole of the town of Wandong, including the housing used by most of its 420 employees. By the late 1890s, it was one of the largest and most technically advanced timber milling enterprises in Victoria, but it was forced to close prematurely in 1902, allegedly due to financial mis-management. During subsequent years, independent millers continued to operate several of the bush mills and part of the bush tramway network, together with the sidings at Wandong, but the seasoning kilns and other major buildings at Wandong were demolished leaving little trace today.[4]

Following the opening of the Whittlesea Railway in December 1889, large-scale timber milling also commenced on the south side of the Great Dividing Range, around Kinglake. In 1910, the Kinglake Sawmills Pty. Ltd. signed an agreement with the Yea, Eltham & Whittlesea Shires allowing it to build a tramway from Whittlesea to Kinglake, and the Flowerdale Timber Co. Pty. Ltd. later followed suit. Both tramways had closed by 1926 with the decline of sawmilling in the area.[5]

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[1] *Statistical Register of Victoria*, 1876-1900, Production.

[2] personal observations by the Authors.

[3] *Light Railways*, July 1975; D.Chambers, *Violet Town - Honeysuckle Rose in Australia Felix*, 1985, pp.316-7.

[4] *Tall Timber and Tramlines*, Light Railways Research Society of Australia, 1974; Payne, 1975, p.178.

[5] Payne, 1975, p.180.

Table 30: Sawmilling in North-East Corridor Towns & Shires 1890-1900.
compiled from The Statistical Register of Victoria, 1890-1900.

Municipality	Year	Total Number of Steam Sawmills	Combined Power of Steam Engines h.p.	Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £	Super Feet of Sawn Timber Produced /1,000	Total Value of Timber Produced £
Broadford	1890-91	3	118	91	22,600	12,100	3,400	13,600
Broadford	1896	2	62	77	12,300	10,500	3,800	9,550
Euroa	1890-91	13	170	167	11,512	2,095	7,171	28,685
Violet Town	1896	2	17	19	250	20	196	588
Benalla	1890-91	2	12	30	1,250	180	1,510	6,040
Benalla	1900	2	32	49	2,560	370	1,350	3,030

Further north, G.E. Thompson purchased the Queen Sawmills at Violet Town, in July 1894, followed by the Benalla Sawmill Co. and two mills in the tall timber country at Marraweeny and Strathbogie. Unlike the mills in the more mountainous districts further south, sawmillers to the north of the Dividing Range appear to have preferred road transport rather than bush tramways for the delivery of logs and sawn timber. Thus the Thompson family bought a steam traction engine in 1904, to replace the bullock drays they had previously used for transporting logs to the Benalla mill.[1]

The Euroa, Violet Town and Benalla Shires continued to be the most important sawmilling centres on the North-East transport corridor during the early 20th century. All of these towns still had 2 or 3 operating sawmills in 1930, and with the introduction of motorised road transport and the disastrous losses of the 1939 bushfires the tend towards the concentration of mills in the major towns became even more pronounced. In 1932, J.A.Terrett & Co. established a large mill and seasoning works in Benalla that was still in business in the early 1970s as Terrett Industries Pty. Ltd., sourcing timber from as far away as Mt Wills using road transport.[2]

The continuing expansion of surviving sawmills, coupled with the prevalence of sawmill fires and the flimsy construction of earlier structures have combined to ensure that none of the pre-1930 sawmill buildings in the north-east corridor towns have survived. At Euroa the last steam-powered sawmill operated until the early 1970s and its steam engine is now preserved in a park next to Seven Creeks, but the buildings have been demolished.[3]

Butter Factories

While commercial dairies, butter and cheese factories are the most common type of factory to found in the north east corridor towns by 1900, they are relative latecomers to the rural industry scene. Prior to the late 1880s, butter and cheese production in Victoria was typically a small scale, localised and often household or farm-based affair. Without refrigeration, large scale manufacture, transport and storage was impossible. Victoria's first mechanised butter & cheese factory was opened at Cobden, in the south-west in October 1888. Within little more than 12 months this pioneering enterprise had been joined by 30 new diary factories throughout Victoria. Aided by the introduction of new technology, such as milking machines, centrifugal cream separators and refrigerating equipment, together with Government incentives and export subsidies, and the spread of the country rail network, butter and cheese manufacturing was set to experience a major boom during the 1890s and early 1900s. By 1905 there were 195 butter & cheese factories operating throughout Victoria, of which 24% were located in the north-east. In addition, the north-east also had about 80 creameries that acted as collection depots for the larger factories. Within the space of 15 years diary products had emerged as Victoria's sixth biggest export by value.[4]

Although most of these diary factories were originally established by co-operatives formed by local farmers, by 1902 half of Victoria's butter production was passing through the hands of a few Melbourne based agencies who either managed or effectively controlled over 100 of the co-operative factories. Three of the main players in this process were the Victorian Creamery & Butter Company (Bartram & Grey), the Melbourne Chilled Butter & Produce Co. and the Fresh Food & Frozen Produce Co. (which subsequently became Holdensen & Neilson Fresh Foods Pty. Ltd.). Rumours of price-fixing, substitution and secret commissions became so rife in the industry that the State Government set up a Royal Commission into the diary industry in 1904, the outcome of which was the *Milk & Diary Supervision Act of 1905* that formed the basis of Victoria's system of diary industry regulation that has continued down to the present day.[5]

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1 Chambers, 1985, pp.252 & 316-7; A.J. Dunlop, *Benalla Cavalcade*, 1973, pp.152-3.

2 *Victorian Municipal Directory*, 1930; Dunlop, 1973, p.154.

3 *Victorian Steam Heritage Survey*, Museum of Victoria.

4 Dr Jan Penny, National Trust survey of Butter Factories; N. Godbold, *Victoria: Cream of the Country*, Diary Industry Association of Victoria, 1990; *Statistical Register of Victoria*, 1900 & 1905, Production & Interchange.

5 Godbold, 1990, pp.52, 59-62 & 75; G.J.R. Linge, 1979, *Industrial Awakening*, pp.58 & 331-7.

Table 31: Butter & Cheese Factories in North-East Corridor Towns & Shires 1890-1900.
compiled from The Statistical Register of Victoria, 1890-1900.

Municipality	Year	Number of Butter Factories	Number of Cheese Factories	Combined Power of Steam Engines h.p.	Total Number of Employees	Total Value of Plant & Machinery £	Total Value of Buildings & Improvements £
Kilmore	1892-93	1	-	8	3	n.a.	n.a.
Kilmore	1896	1	-	6	5	n.a.	n.a.
Kilmore & Broadford	1900	2	-	20	9	1,600	1,000
Broadford	1892-93	1	-	6	2	n.a.	n.a.
Seymour	1900	1	-	15	6	980	900
Euroa	1892-93	6	-	66	17	5,911	3,356
Euroa	1896	4	-	58	33	6,130	3,500
Euroa	1900	5	-	178	51	9,390	5,170
Violet Town	1896	7	-	66	22	5,170	1,380
Violet Town	1900	5	-	76	17	4,620	2,280
Benalla	1892-93	13	-	93	28	8,356	4,188
Benalla	1896	14	-	139	53	13,300	5,420
Benalla	1900	11	-	167	52	13,170	4,740
Wangaratta	1900	1	-	10	10	n.a.	n.a.
Wodonga	1896	1	-	8	1	n.a.	n.a.

Unlike many of the butter & cheese factories in Gippsland and the South-West, factories in the North-East seem to have maintained a strong tradition of independence, with Albury and Wangaratta butter factories being the only major producers that became tied to one of the large Melbourne-based Proprietary Companies. In March 1899, Benalla played host to a secret meeting between heads of a number of independent co-operatives that formed the Victorian Butter Factories Co-operative Co. Ltd. This organisation was jointly owned by all member co-operatives and set up an office in Melbourne from where it arranged joint marketing and the purchase of machinery on better terms. At Benalla, Wangaratta, Myrtleford and Milawa strong independent butter factories continued to operate as separate entities until they were absorbed by the giant Murray-Goulburn Co-operative during the 1960s or 1970s.[1]

The Wodonga Butter Factory provides a good example of the typical development and complex history of ownership of one such butter factory. The first company was registered in 1892, but was liquidated on 8 June 1895 and does not appear in the records again until 1910 when it is registered as being owned by Holderson & Neilson. In 1908 Holderson & Neilson absorbed the large Fresh Food and Storage Co which had the largest network of creameries and butter factories in Victoria. The Albury Butter Factory (est. 1892) and Wangaratta Butter factory (c1920) were also acquired by Holderson & Neilson, giving them 8 butter factories, 3 milk factories and one cheese factory in the 1920s. The Wodonga plant also produced ice and ice cream and was described as one of the larger Victorian butter factories. In 1920 Robert Aikins was manager of the Wodonga Butter and Ice Making Factory and it was later taken over by the North-Eastern Dairy Co. an amalgamation of butter factories in Keiwa, Tallangata and Springhurst.[2]

The Euroa Butter Factory was one of the first butter factories to be established in north west Victoria. It was erected in 1891 following the registration of the Euroa Co-Operative Dairy Co. in March and opened in September. Forty-nine tons of butter were exported from the factory in 1892 and 4,000 cows were providing milk to the factory. However it was destroyed by fire 1901 and was subsequently rebuilt by a Mr. Beck for £7000. The factory was one of the first in Victoria to adopt the Babcock 'fair' tester which had been developed in America, allowing an accurate test of the level of butter fat in the milk supplied by farmers to be assessed. The firm won first prizes for Butter at the Melbourne Show in 1896, the Islington Show, England in 1902 and the Victorian Export Championship in 1907. In 1906 the factory was claimed to be the most up-to-date butter factory in the southern hemisphere succeeding in taking the markets and suppliers of nearby factories such as that in Violet Town.[3]

The effects of WW I on the export trade and the greater profitability of other forms of agriculture in the area caused the company's profitability to fall and it went into liquidation on July 14 1914. It was soon after registered as a private company and continued to trade under the ownership of Wood & Co. (winning prizes almost annually) up to 1927 when J.E. Handlebury & Sons bought the firm. They operated the factory successfully until 1949 when they sold out to British United Dairies, but declining sales brought about the final closure in 1951.[4]

In 1900 there were 25 creameries and butter and cheese factories in the north east corridor towns, 11 in Benalla, five each in Euroa and Violet Town and one each in Kilmore, Broadford, Seymour and Wangaratta *(table 31)*. This number had almost doubled by 1930.[5]

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[1] Jan Penny, National Trust survey of Butter Factories, 1991-2; N. Gadbold, *Victoria: Cream of the Country,* Dairy Industry Association of Victoria, 1990, pp.61-3 & 182.Dunlop, 1973, *Benalla Cavalcade*, p.81.

[2] *Sands and McDougall Directories;* Godbold, 1990; A.J. Dunlop, *Wodonga: Over the River and Plain.* Hawthorn Press 1976.

[3] Chambers, D. *Violet Town of honeysuckle in Australia Felix 1836-1908* MUP 1985, pp. 17,147.

[4] Halstall, C. *100 Years of local government 1880-1980,* Euroa Centenary Committee 1980; *Weekly Times* 25 August 1928, p.5; Godbold,

[5] *Statistical Register of Victoria*, Production, 1900; *Sands & McDougall Directories.*

Gasworks

The three largest North-East corridor towns, Wangaratta, Benalla and Seymour, all had public gasworks for street lighting and domestic supply. The Benalla gasworks was the first in this region to be completed, opening in May 1887, and it is significant in being the first of 47 gasworks built in Australia by the British engineering firm Coates & Co. The Wangaratta gasworks followed, opening on 30 April 1888. Both of these gasworks were originally financed by separate locally-promoted public companies, but both floats were heavily under-subscribed leaving Coates & Co., as underwriters, with a majority shareholding.[1]

At Seymour, the gas supply was initiated by the Victorian Railways Department, who commissioned a plant with two retorts and a 3,500 cubic ft. holder in December 1887, to provide lighting for signals, platforms and railway yards at the station, which at that time was one of the biggest in rural Victoria. Simultaneously, local businessmen, with assistance from Coates & Co., launched a separate proposal to form the Seymour Gas Co. They successfully negotiated to take over the Railway's plant almost immediately, but it was not until 1889, when a larger gasworks was completed, that street lighting and reticulated supply was provided throughout the town.

In February 1888, the Australian Gas Association Ltd. was formed by John Coates and a number of associates to provide capital for the consolidation of all Coates & Co. interests in Australia. With the help of the Coates's local agent, George Swinburne, the A.G.A. arranged to purchase all three gasworks in Benalla, Seymour and Wangaratta, from the local companies, and they were amalgamated into part of A.G.A.'s Australia-wide network. In 1893, the Association changed its name to the Colonial Gas Association Ltd. Despite the inroads made by electric lighting after 1920, all of these gas supplies continued to operate until 1977, when piped natural gas reached the towns. Local gas production, however, had actually ceased in 1962 when supply was switched to liquid propane gas brought by road tanker from Melbourne refineries, and apart from the gasometers, most of the plant was probably demolished at this time. All three works were sold to the Gas & Fuel Corporation in 1973.[2]

Other Manufacturing

After flour mills, brickworks, sawmills and butter factories, breweries and tanneries were the next most common types of factories in the North-East corridor towns. By the early 1870s there were breweries in Kilmore, Seymour, Benalla and Wangaratta *(table 28)*. Wangaratta, with its proximity to the Ovens goldfields had the most breweries of any of these towns. Whittaker emphasises that John Meldrum was the first 'licensed' brewer to establish himself in Wangaratta, commencing in 1863 at a time when Wangaratta had 10 hotels. 'Meldrum's Ale' is reported to have gained a widespread reputation and was popular throughout the North-East goldfields.[3]

Wangaratta's largest and most important brewery was established by the Wangaratta Brewery & Malting Co. in Chisholm Street, in 1868, with an impressive building designed by Thomas Merritt. After the company folded in 1877, the business was bought by a former manager, John Dodsworth, who since 1872 had been operating his own brewery in Grey Street in competition. The buildings of the Wangaratta Brewing & Malting Co. survived until at least 1963, but have since been demolished.[4]

[1] Proudley, p.340-1 & 330-1; Whittaker, 1963, p.95.
[2] Proudley, p.330-1, 340-1, 354-5 & 361-6.
[3] Whittaker, p.???
[4] Whittaker, 1963, p.168.

Although most of the major towns along the north-east corridor had one or two breweries operating by the late 1870s, the decline of the goldfields and competition from the larger Melbourne breweries eventually forced many to close. By 1900, there was only a single brewery operating in each of the three northern-most towns: Benalla, Wangaratta and Chiltern (*see table 28*). However, whilst the breweries declined, the manufacture of cordials and aerated waters continued to expand during the early 20th century. Wangaratta, Euroa, Kilmore and Seymour all still had cordial factories operating in 1930.[1]

Of all the north-east corridor towns Wangaratta probably attracted the most noxious industries with not only breweries and tanneries, but also a Lyon's Soap Works, established during the late 1860s, the Ovens Bone Mills, established in 1896, and the Wangaratta Bacon-Curing & Freezing Works, established in 1895. The bacon works continued to operate until 1938, when it was sold to J.C. Huttons, of Preston, who then used it as a distribution depot until the 1960s, while Lyon's Soap Works was taken over by J. Kitchen & Sons Pty. Ltd. in 1887 and closed in 1938. As with flour milling and brewery, almost all manufacturing sectors in the north-east corridor became dominated by powerful city based companies by the mid 20th century.[2]

Tanneries were also well represented amongst the factories in North-East corridor towns, but with the exception of the Wangaratta and Broadford tanneries, most appear to have been fairly short lived. The earliest tannery in Wangaratta was established by Thomas Leishman and William Boyd in Templton Street, adjacent to the river, during the late 1850s, and was still in operation in 1901.[3] Zwar's tannery, just outside Beechworth, was eventually to become the biggest in the whole of the North-East. When it was originally established by Matthew Dodd in 1858, Beechworth was still on the major route to Sydney, but the town was later by-passed by the construction of the new railway and highway passing through Chiltern down on the plains.

In 1888, the Beechworth Tannery was taken over by William Zwar, a German born immigrant and former employee of Lloyd & Maginnis. William Zwar formed a partnership with a younger brother and Leonard Lloyd, proprietor of Eliza Tinsley, a Melbourne importing company. By 1896 the workforce at Zwar Bros. tannery had doubled to 30 and output had risen from 50 to 210 hides a week. The company concentrated on both sole leather and several grades of high-quality dressed leather. The purity of the local water supply was regarded as one of the secrets to the high quality of the company's output.

After 1900, Albert Zwar emerged as the dynamo behind the Zwar Bros. continued expansion and William left the company to take up a position with one of the Preston tanneries. Later William opened his own tannery in Preston in partnership with another brother from Beechworth. Meanwhile the Beechworth Tannery continued to expand until the early 1940s, by which time it was Beechworth's most important industry. The company gained large Government contracts during both World Wars and built up an important connection with the motor-building trade, but the widespread introduction of synthetic vinyl fabrics eventually forced it to close in the late 1960s.[4] Today significant remains survive from the Zwar Bros. Beechworth tannery, including a brick chimney and several tan pits, but it has not been included in the citations because it was considered outside the area covered by this study.[5]

Aside from Zwars at Beechworth, probably the best known tannery in North-East Victoria was that of Lloyd & Maginnis in Broadford. This firm was established in 1870, when two Lloyd brothers purchased a small dilapidated tannery on the banks of Sunday Creek in Broadford. At this time the tannery had a capacity of only 25 hides per week, which was probably typical of other North-East tanneries. The business received a major boost in 1886, when a cousin, James Maginnis joined the

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[1] *Statistical Register of Victoria*, 1900, Production; *Victorian Municipal Directory*, 1930; Smith, 1905, vol.3, p.445.

[2] Whittaker, 1963, pp.168-70; Smith, 1905, vol.3, p.437; *Victorian Municipal Directory*, 1930.

[3] Whittaker, p.170; *Australian Leather Journal*, 15.05.1901.

[4] C. Woods, *Beechworth: A Titan's Field*, Hargreen Publishing, 1985, pp.82,120 & 165-8; Carroll & Rule, p.54; *Australian Leather Journal*, 15.12.1902, p.497.

[5] Carroll & Rule, p.54; *Australian Leather Journal*, 15.12.1902, p.497.

firm. His expert skills were used to turn out new lines of patent and enamelled leather for coachbuilders, saddlers, trimmers and boot manufacturers.

In 1892, the firm took an obvious but somewhat unusual step towards vertical integration by opening an agency in Melbourne which dealt in other manufacturers leather and skins as well as their own. Four years later, they began exporting direct to London and by 1902 this trade accounted for 50% of the output at the Broadford tannery, which had been increased to 300 hides a week. Part of the secret behind the firm's success lay in their willingness to keep improving the tannery, expanding output and purchasing new machinery such as the 106 inch wide band-knife splitting machine installed in 1902, which was reputed to be the largest machine of its type in Australia.[1]

The second major industry in Broadford, like Lloyd & Maginnis's tannery, took advantage of the clean and constant water supply from Sunday Creek. The Broadford Paper Mill was established in 1890-91 by James McDougall of Sands & McDougall fame in order to ensure supply of board to the vast stationery and printing firm based in Spencer St. Melbourne. The Broadford site was chosen for its access to supplies of straw from the agricultural districts to the north and for the convenience of the nearby North Eastern Railway. The initial cost of the mill, plant, and land was around £45,000. American machinery and an American paper-making expert were imported but union disputes and unfamiliarity with the equipment delayed operation considerably. Regular production began in February or March 1891. A key to the establishment of the mill was the granting of a tariff on imported strawboard which McDougall obtained before commencing construction and subsequently fought to retain at Tarriff Board hearings. In 1895, McDougall sought to reduce his financial exposure to the paper trade and so sold the Broadford mill to Brooks & Currie of the Melbourne Paper Mills. They also took over the Fyansford paper mill near Geelong in the same year and formed The Australian Paper Mills Co. Ltd.

The Broadford mill was initially constructed for the manufacture of straw-board for binding books, ledgers, etc. but it also made some finer rag paper. Straw board, however, was the mill's mainstay and it was the first and only such mill in Australia or the British Empire. The original mill building burnt down in 1911 but was rebuilt and recommenced production on September 1. Rebuilding the mill provided the opportunity to modernise equipment with the new machinery being completely driven by D.C. electric motors throughout. Electricity was supplied from three steam-driven generators in the company's own powerhouse, which also supplied electricity for street lighting and domestic use in the town of Broadford until the S.E.C. supply was connected in late 1949.[2] In subsequent years machinery was transferred between the mills owned by APM with some Fyansford equipment coming to Broadford when that mill closed down in 1922 due to a shortage of rags caused by a ban on rag collection because of an outbreak of plague. By the mid-1920s the mill was employing some 200 hands.

In 1938, problems with lack of adequate water supply caused by the silting of Sunday Creek from land-clearing up-stream, resulted in its closure for four months. Then, in 1940, the mill almost closed altogether with almost all of the staff and much of the machinery being transfered to other mills, but Defence Department contracts re-invigorated it with orders for 'Defence Strawboard' during WW II.Since the 1970s the Broadford Mill has been turned to the manufacture of paper and board from recycled paper waste. Production of strawboard ceased in 1988.[3]

Of the surviving buildings, the oldest are of brick and date from around 1912, however, extensive additions in asbestos cement were made during the post Second World War period. The original brick chimney that was one of the few structures to survive the 1911 fire remained in use until recently when it was replaced with the present steel structure.

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[1] Smith, vol.I, pp.532-3; *Australian Leather Journal*, 15.12.1902, p.498 & 15.10.1903, p.390.

[2] Rule, 1990, *Through the Mill*, pp.21,28 & 57.

[3] *Sand & McDougall Victorian Directory* 1920, *Municipal Directories*; Andrew Rule, *Through the Mill A history of the Broadford Mill 1890-1990*, APM, 1990.

From at least the mid 19th century, every town of note had its blacksmith's and farrier's shop, which sometimes also operated as a coach-builder and wheelwright. Few towns, however, were able to support more advanced metal manufacturing industries such as foundries or engineering works. As the principal service town for both the north east farming district and the Chiltern and Ovens Valley goldfields, Wangaratta was somewhat of an exception in this regard.

William Hughes established a small foundry at his implement works in Wangaratta North in 1868, with the first casting pour being made on 31st August. It is believed that this was the first proper foundry in the North-East outside of the goldfield towns such as Beechworth and Rutherglen. Charcoal for the furnace was obtained from the Warby Ranges and pig iron was brought from Melbourne by dray. The main output appears to have been builders' ironwork and components for the agricultural implements such as strippers, reapers and ploughs, that Hughes built and repaired. According to Whittaker, Hughes foundry was forced to close in 1875 due to poor management.[1]

After this, Wangaratta was again without a foundry until Charles Ruwolt established his engineering and agricultural implement works on the north side of the river in 1902. Ruwolt began with a staff of only 6 men and 6 boys and initially specialised in the manufacture of metal windmills and ball bearings, but by 1906 he had mainly shifted to the repair and manufacture of heavy machinery for the North-East gold and tin mines. In 1909, the foundry launched into a bold new venture by gaining its first contract to build a bucket excavator gold-dredge. This dredge was successfully completed the following year and was followed by further contracts to build another 12 dredges at the Wangaratta works. In 1910 the company was reformed as Chas. Ruwolt Pty. Ltd. With the prospect of further work building tin dredges for export to Malaysia and no doubt mindful of the greater opportunities in Melbourne, the firm purchased an 11 3/4 acre site at Richmond in 1911 and began to relocate its plant there. The Richmond works commenced in 1913 and the Wangaratta works closed down the following year.[2]

For most of the North-East corridor towns, all manufacturing that developed up until 1930 was primarily dependant on the ubiquitous staples of any residential settlement: timber, bread, beer and butter. Only Wangaratta had managed to developed what could be described as a more diverse industrialised manufacturing base.

Wangaratta's biggest manufacturing success in the decade after Ruwolt's foundry closed, was the woollen mill. Financed by a public company with a nominal capital of £100,000, the first section of the woollen mill was completed in 1922-3. This consisted of a 244 ft. x 66 ft. saw-tooth-roofed building housing 28 spinning machines, plus an electric powerhouse and 100 ft. high chimney. The powerhouse was equipped with high-speed steam engines built by Thompson's of Castlemaine, and provided electricity both for the mill's operations and street lighting and domestic customers in the township until the S.E.C. supply arrived in 1927.[3]

The Wangaratta Woollen Mill commenced operations in March 1923 with Mr F. Firth as manager, and a workforce of 50. Over the next 40 years, the mill prospered under a regime of favourable Commonwealth import tariffs and the workforce increased to 470, whilst the factory floor space was expanded to over six times the original area.[4]

The third major industrial development in Wangaratta during the 20th century, occurred during the Second World War, when the Munitions Department made a decision to built Australia's second full-scale aluminium rolling mill and extruding plant in the town in 1942. However, the end of the war came before production commenced and the site was abandoned, later being taken over by the Canadian-based synthetic fibres manufacturer Bruck Mills (Canada) in 1947 for what was probably Australia's first full-scale synthetic fibre mill.[5]

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[1] Whittaker, p.170.

[2] G.D. Hayes, *Charles Ruwolt - A History to 1927*, M.Env.Sc. thesis, University of Melbourne, 1981; Whittaker, pp.170-1; Churchward & Milner

[3] Whittaker, pp.172 & 97.

[4] Whittaker, p.172.

[5] Whittaker, pp.90-1 & 172-3.

By 1900, Wangaratta and Benalla had emerged as the two principal manufacturing towns in the North-East transport corridor. Over the next 50 years, both these towns experienced manufacturing growth rates of 20-50% per decade, with the main development coming between the two World Wars. Compared with the northern suburbs of Melbourne during this period, such growth rates were not spectacular. Other towns in the north east transport corridor remained local or regional supply centres for the predominantly pastoral economy of the district. As a consequence, their prosperity has been tied to the fortunes of farming and grazing activity rather than the expansion of their manufacturing sector.

Initially, manufacturing in all of the north east corridor towns was geared towards the supply of consumer products for local markets, byt with the opening of the North Eastern Railway in 1874, new opportunities were established for markets in Melbourne By the early 20th century, several key industries such as flour milling, butter factories and tanneries had taken this process a step further by developing significant export markets. Ultimately, however, there was little economic value in continuing industries outside the metropolitan area that were dependant on neither local raw materials, or local markets, and this factor was to lead to the closre of many factories in the north east towns in the years after 1930.

Table 32: Analysis by Type of Surviving pre 1931 Factory Buildings in North-East Transport Corridor Towns.
compiled from Summary List of Sites Examined

MANUFACTURING SECTOR	Factory Study - Surviving pre 1931 Factory Buildings in North-East Corridor Towns	
	Number Recorded	Proportion of Total
Food & Drinks	6	50 %
Clothing & Textiles	1	8.3%
Footwear	-	0 %
Engineering & Metal Products	3	25 %
Noxious Trades & Animal By-products	-	0 %
Timber Products & Furniture	-	0 %
Building Materials	1	8.3%
Chemicals	-	0 %
Other Vegetable Products	1	8.3%
Miscellaneous Products	-	0 %
TOTALS	12	99.9%

3. Results

Summary of results

The industrial suburbs of Melbourne and the north east transport corridor towns each have their own distinctive character in terms of surviving factories. Very few pre-1870s factories survive, a consequence of two main factors, the insubstantial nature of most early factory buildings which were generally built of timber and corrugated iron, and the generally undesirable nature of the early industries which were predominantly those now classed as 'noxious', ie. woolscourers, tanneries, boiling-down works, fellmongeries, etc. Both factors were enhanced by factory regulations which, from the 1880's on, encouraged rebuilding and replacement of the poorly built and noxious factories.

The early domestic-scale factories of Collingwood and Fitzroy demonstrate the period of intermingling between industry and residences. The concentration of brewing/distilling in South Fitzroy, Collingwood and Abbotsford can be seen in a large group of surprisingly intact sites despite the closures of the early twentieth century. Rationalization of the surviving manufacturers has left many unrequired manufacturing sites vacant, or used as stores, and so reduced the need for demolition and reconstruction. The large boot and shoe factories in Collingwood have mostly survived although turned to other uses with the demise of the local footwear trade.

Few large industrial complexes apart from the breweries and distilleries were located in the inner suburbs. Lack of space to expand precluded the sort of sprawling factories found in the western and northern suburbs such as the Yarraville chemical plants, the munitions industries in Footscray and Deer Park or the textile mills of Brunswick and Coburg. Exceptions are MacRobertson's in Fitzroy and Foy & Gibson in Collingwood, which both began in a small way and progressively expanded to take over several blocks previously occupied by worker's housing. The high profitability of these works allowed them to expand while their labour-intensive nature fairly demanded that they were in a densely settled urban area. It is suspected that the firms also had considerable support from local government on which the principals of both companies served. Another exception, Yarra Falls Ltd. was able to utilize a previously vacant site on the banks of the Yarra which recalls the character of water-powered woollen mills in England although the power source adopted in this case, was initially steam. The concrete flood wall clearly demonstrates how Yarra Falls was able to make use of the site and why it had not been used before.

The sprawling sawtooth factories associated with textile mills were a style of building characteristic of Brunswick and Coburg where industry developed later. By the 1930s, many forms of manufacture demanded clear space on a single level for the production-line techniques of mass-production. The timber or steel framed sawtooth roof factory was first used for textile mills and wool-stores but it had become the standard form of all industrial buildings by the 1940s and has only recently been displaced in the sast decade, by cheaper to build pre-fabricated, pre-stressed, concrete panel construction and clearspan, steel-framed, lightly clad building.

A comparison of the maps showing factory locations in Section 2 with the locations of surviving sites, shows that in most cases the past and present distribution in factories follows a similar pattern. The real difference in factories is in the distribution of particular types of industry. Operating boot and shoe factories still survive in Collingwood, but nowhere approaching the scale of the nineteenth or early twentieth centuries. None of the large multi-storey boot factories built between 1895 and 1915 are still being put to their original uses. They have all been converted to offices, self-storage warehouses or tenanted factories of various descriptions. The large-scale industries in general have vacated the inner suburbs to take up modern premises on the suburban fringe. The one exception to this rule, is the Abbotsford brewery of CUB, which has grown at the expense of the Foster's, Carlton, Victoria and other breweries which merged to form this conglomerate in 1907 demonstrating the continuing profitability of beer making.

Significant buildings

The primary product of *The Northern Suburbs Factory Study* is the volume of citations for sites which were examined. These comprise 292 sites which were deemed to met the criteria for inclusion *(see section 1)* and for which evidence suggested were potentially of significance. Of these, 214 were found to be significant at either the local, regional of state level. A total of 94 sites were regarded of state significance and as having a prima facia case for nomination to the Historic Buildings Register while 57 sites were recorded as of regional significance and 63 of local significance. The remainder of the sites recorded were of interest in the broader context of the typological analysis but were not regarded as significant in themselves.

This grading of sites according to their significance should not be regarded as an absolute assessment, as there was obviously insufficient time to fully research every site. Further investigation may reveal additional factors to be taken into account in assessing the sites' significance, particularly in terms of social and historic importance. A summary list of the sites examined is included in this section while the entire citations are included in Part Two of the Report.

The following summary list includes the name and location of all sites for which citations have been prepared. The name is in most cases the original name of the company which built the factory, or the most prominent of the companies which operated on the site, or the name commonly used to refer to the factory. For example the Hoffman Brickworks was operated initially by the Hoffman Patent Brick and Tile Co.

The date of construction of the surviving buildings is given, although in many cases this is only approximate. The column for existing designation indicates present classification on the National Trust or Statutory registers and whether the site is included in previous heritage studies. The abbreviations are as follows:

NT	National Trust Register
HBR	Historic Buildings Register
NE	Register of the National Estate
BCS	Brunswick Conservation Study
KBH	Keeping Brunswick's Heritage
CHSS	Coburg Heritage Conservation & Streetscape Study
CCS	Collingwood Conservation Study
NFCS	North Fitzroy Conservation Study
SFCS	South Fitzroy Conservation Study
NUCS	Northcote Urban Conservation Study
BenCS	Benalla Conservation Study

The last column identifies the significance attributed to the site in this study. This does not always correspond to the assessment of significance in other conservation studies because an independent assessment has been made on the separate criteria developed for the Northern Suburbs Factory Study. Where the significance of the site is primarily based on its significance as part of non-factory use, as in the case of a non-industrial building recycled as a factory at some part of its life, this has been indicated by the level of significance being followed by an asterisk thus: *.

Summary list of places examined

Name	Location	Date-Approx.	Existing Designation	Significance
	BROADMEADOWS			
Hutchinson Flour Mill	Hartington Street Glenroy	1930		local
	BRUNSWICK			
Ferry's Pottery weigh-bridge	310 Albert Street	1887	BCS NT	state
Wolf's Cordage Works	399-401 Albion St.	c1920	KBH	local
Samuel Faiman furrier	443 Albion St.	c1920		regional
Hilton/Aust. Consolidated Hosiery	480 Albion St.	1940		
Brunswick Market/Henderson's	Ballarat Street	1930	NT (file)	state *
Henderson's Boxes	393 Barkley St.	1920	KBH	local
Latoof & Callil	17-29 Brunswick Rd.	1885/1935		
Rayon Distributors	61-3 Brunswick Rd.	1930		
Luckman stairbuilder/Star Cinema	66 Brunswick Rd.	1920-23		regional *
Alex Sturrock & sons	125 Brunswick Rd.	1900		local
Patrick Sheehan	184 Brunswick Rd.	1925		
William Apps	190 Brunswick Rd.	1920		
Henderson Shirt Factory	337-9 Brunswick Rd.	1900	KBH	state
Page & Burnes	2a Charles St.	1900		
Lattner Hat Factory	20 Dawson St.		KBH	regional
Millers Ropeworks	47 Dawson Street	1909	KBH	state
T. Rawleigh & Co	60 Dawson St.	1910		state
Hoffman Brick Works	78 Dawson Street	1883	BCS NT HBR KBH	state
Murray's confectionery works	74 De Carle St.	1920		regional
Prestige Hosiery	159 Donald St.	1930		
Tip Top Bakery	170 Edward St.	1940		state
Sleeping Beauty Product	103-5 Evans St.	1910		
Steel Co. of Australia	14 Frith St. & Howarth St.	1910/1930		regional
Stephens & Co. clothing factory	20 Grey Street & 19 Hodgson St.	1895		regional
Gas works/ The Lux Foundry	1-35 Hope St.	1889-91	BCS KBH	state
Yorkshire Textile Mills	Inverness St.	1919	KBH	regional
Montecassino Knitting Mills	82-94 John St.	1930-40		
Bates & Co. Stoves Pty Ltd	Little Miller St. Brunswick	c1925		
Balmoral Knitting Mills	11 Lygon St and Brunswick Rd.	1920		local
Red Robin/Gaffney Int.	162 Lygon St.	1920		local
Textile mill	236 Lygon St.	1930		
Textile mill	240 Lygon St.	1930		
G. Burgin	260-74 Lygon St.	1930		
Castle Knitting Mill/	326-48 Lygon St.	1930		
H.H. Mann/Peerless Silk Mills	1 Manallak St	1910	KBH	local
Staley & Staley/Holeproof	6 Merri St.	1926	KBH NT (file)	state
Jackson & Eckersall/	18 Michael St.	1910	KBH	
Clothing factory/Sovrano Knitwear	16-20 Michael St	1895/1930		
Crucible Steel Works/	21 Michael Street	1889/1930		
John Welsh Pty Ltd.	12-20 Millar St.	1910/40	KBH NT (file)	regional
Hooper's Store	463-75 Sydney Rd.	1880	KBH BCS	state
Sampson ropeworks/ Downs Cordage Works	64-72 Tinning St. & 7-9 Cassells St. also La Rose St.	1890/1908	KBH	state
Lane Shirt Factory	1a Union St. rear & Lt. Gold St.	1890/1930		
Buffalo Trident	110 Union Street	1920		
Jenkins' boot factory	Victoria & Sedgeman Sts.	1900		
Hoadly & MacRobertson licorice	Victoria & Rosser Sts.	1898/1922	KBH	state
Ingot Metals/Dawson Foundry	430 Victoria St. rear	1935-40		
Olsen clothing factory	437 Victoria St.	1910		
Williams Iron Works	7 Weston St.	1910		local
Albion Clothing Co.	29-31 Weston St.	1920-60	KBH	regional
Oakley's Foundry	128 Weston St.	1890/1930		regional
Finchett shoe factory	25 Wilson Ave,	1920		

COBURG

Kaora Worsted Mill	cnr Cope & Stock Sts.	1920		local
Lincoln Mills	82-92 Gaffney St.	1918/40	CHSS	state
Sandstone factory	6 Lens St.	c1910		regional
Spicer Paper Mills	1-9 Moreland Rd.	1920-40	CHSS	state
Union Knitting Mills	37-43 Munro St.	1936	CHSS	regional
Hilton knitting Mills/Kayser	51 Normanby St.	1920		regional
Dawn Mfg Co.	Service St.	1918		local
W.E. Cash metal works	200-216 Sydney Rd.	1898-1915	CHSS	regional
Commonwealth Dyers Association	519 Sydney Rd.	1935		

COLLINGWOOD

Trescowthick, I. boot factory	59 Alexandra Pde.	c1925		
Box's Hair Works	62 Alexandra Pde. & Gold St. Clifton Hill	1880	CCS NT	state
Shot Tower	94 Alexandra Pde. Clifton Hill	1890	HBR NT CCS	state
Hall Bros	174 Alexandra Pde. Clifton Hill	1920-50		state
Chidsey & Rodgers	210 Alexandra Pde. East Clifton Hill	1920		
Wainwright & son boot factory	230 Alexandra Pde. East Clifton Hill	1910		local
Leadenhall Tanneries	260-90 Alexandra Pde. East Clifton Hill	1890-1950		local
Soho Shoe Company	3 Bedford St.	1890		local
Newton's underclothing factory	5 Bedford St. inc. Yard & Cranes opposite	1890		local
McGann's boot factory	15-17 Bedford St.	1886	CCS	regional
Bates Cocoa Mills	2 Bond St. Abbotsford	1880	CCS	state *
Laver Bros. preserving factory	36-44 Cambridge St.	1890		regional
Dyason's cordial factory	63 Cambridge St.	1890		regional
Vauxhall distillery	Church St. near Yarra	1895	CCS	state
Fillingham's shoe factory	16-26 Dally St. Clifton Hill	1920		
American Blacking Co.	41-7 Dally St. Clifton Hill	1890		state
Sage's carriage works	2 Easy St.	1880		local
Walters & Hunt shoe factory	3-5 Easy St.	1930		regional
G.N. Raymond last factory	6-34 Easy St.	1890/1920		state
G.N. Raymond box factory	17-47 Easy St.	1926		regional
Beard & Sisson wheelwrights	155 Easy St.	1910		local
Tascott shoe factory	160 Easy St.	1920		
Harold Shoe Factory	205 Gipps & Nicholson Sts. Abbotsford	1915		
Cyclone Co. of Australia	Gipps St. Abbotsford	1910		regional
Clifton Hill Sawmills	19-27 Grant St. Clifton Hill	1880	CCS	state
W.J. Brewer	29 Grant St. Clifton Hill	1900		local
Trescowthick's boot factory	24 Groom St. Clifton Hill	1890		state
Australian Process Shoe Co.	Groom & Rosneath Sts. NW Clifton Hill	1920		local
Pitman shoe factory	37 Groom St. Clifton Hill	1900		local
Trueform Boot & Shoe Co.	43 Groom St. Clifton Hill	1900		local
Australian Asbestos Co.	Grosvenor St. Abbotsford	1889	CCS	state
Victorian Ice Co.	Grosvenor & Southampton Sts. Abbots.	1889-90	CCS	state
Phoenix Biscuit Co.	41 Grosvenor St. Abbotsford	1925		regional
Robert Reid clothing factory	2 Hoddle St and Ferguson St. Abbotsford	1890	CCS	regional
Whybrow's Boot Factory	198-210 Hoddle St. Abbotsford	1920	CCS	state
Whybrow& Co. boot factory	218 Hoddle St. Abbotsford	1914		regional
Trescowthick's boot factory	316 Hoddle St. Abbotsford	1920		
Trescowthick's boot factory	326 Hoddle St. Abbotsford	1910		regional
Clifton Hill Shoe Co.	380-406 Hoddle St. Abbotsford	1913	CCS	state
Llewellyns Shoe Co.	408-420 Hoddle St. Abbotsford	1911	CCS	state
Wm. Murray woolworks	457 Hoddle St. Abbotsford	1918	CCS	state
McBean boot factory	45 Hotham St. Abbotsford	1910		
Smalley & Harkness Mfg	16 Islington St.	1898/1910	CCS	state
James Head & Co	61 Islington St.	1878/1928	CCS	state
Robin's boot factory	111 Islington St.	1925		
St Crispin House	247-253 Johnston St. Abbotsford	1923		regional *
Percy Miller knife manufacturer	328-334 Johnston St. Abbotsford	1910		local
Yarra Falls Mills	452 Johnston St. Abbotsford	1917		state
Wm. Peatt Boot Mfg	59 Langridge St. Abbotsford	1906/1920		regional
Alpine Flour Factory	139 Langridge St. Abbotsford	1910		state
Williams Shoe Factory	202 Langridge St. Abbotsford	1909/1920	CCS	regional
Schweppe's Cordial Factory	35-47 Lithgow St. Abbotsford	1880/1920	CCS	state
Anderson & Brooks boot factory	Marshall Place Clifton Hill	1920		

T. Bone cabinet works	12 Mater St. Clifton Hill	1930		
Denton's Hats scouring works	23 Mollison St. Abbotsford	1915		state
Denton's Hats	48-60 Nicholson St. Abbotsford	1880	NT HBR CCS	state
Spicer's Boot Co.	163 Noone St. Clifton Hill	1890		local
Stockport hat factory	176 Noone St. Clifton Hill	1880		regional
Puttifoot shoe factory	200 Noone St. Clifton Hill	1910		regional
Aitken's Victoria Distillery	Northumberland St.	1862	CCS	state
E.H. Reidy furniture factory	12-18 Otter St	1856/1915	CCS	state
Foy and Gibson.	Oxford St. & Cambridge St.	1884-1930	CCS NT HBR	state
Yates boot factory	6-10 Page St. Clifton Hill	1884	CCS	state
Clifton Shoe Co	1 Parslow St. Clifton Hill	1930		state
Bennet's hay store	15-33 Queens Pde. Clifton Hill	1872	CCS	state *
Luton Hat Works	37 Queens Pde. Clifton Hill	1897	CCS	local
True-Mould Tyres	205 Queens Pde. Clifton Hill	1930		state *
Parker Shoe Co.	259 Queens Pde. Clifton Hill	1920		
Foster Lager Brewing Co	15 Rokeby St. Collingwood	1888	CCS	state
Ideal Box Factory	92-94 Rokeby St. Collingwood	1925		local
Victoria Tannery and boot factory	Rokeby & Glasshouse Sts. Collingwood	c1876		state
Sherry shoe factory	171-3 Rosneath St. Clifton Hill	1920		
Davis' pickle and sauce factory	89 Rupert St. Collingwood	1920		local
Beith & Schiess & Co	108 Sackville St. Collingwood	1883	CCS	local
Beith & Schiess & Co	110 Sackville St.	1899	CCS	state
Beith & Schiess & Co	112 Sackville St	1888	CCS	state
Spry Bros. boot factory	628-32 Smith St. Clifton Hill	1890&1910		regional
Kodak (Aust) Pty Ltd.	Southampton Crs. Abbotsford	1928	CCS	regional
Ramsden boot factory	33 Spensley St. Clifton Hill	1920		
Whybrow's Boot Factory	1-15 Stafford St. Abbotsford	1890		state
Byfas/Yarra Falls	8-12 Trennery Crs. Abbotsford	1940		regional
W. Saunders	18-22 Trennery Crs. Abbotsford	1922		local
Yarra Falls	80-110 Trennery Crs. Abbotsford	1910	CCS	local
Austral Hat Mills	112 Trennery Crescent Abbotsford	1900	CCS	regional
Dight's Flour Mill	off Trennery Crescent Abbotsford	1841/1909	CCS	state
Tweedside mills	61-69 Victoria Crescent Abbotsford	1919		local
Hatcher's laundry	16-24 Victoria Crescent Abbotsford	1910		local *
Crusader Plate	651-653 Victoria St. Abbotsford	1937	CCS	local
Handley & Tilley	655 Victoria St. Abbotsford	1929	CCS	state
Nettleton Wool Works	663 Victoria St. Abbotsford	1861	CCS	state
Walker Joinery	Walker to Spensley Sts. Clifton Hill	c1935		
Yorkshire Brewery	88 Wellington St.	1876	CCS	state
J. Spira	253-7 Wellington St.	1910		local
Benjamin's clothing factory	320-4 Wellington St.	1930		
	FITZROY			
British United Shoe Machinery Co	200 Alexandra Pde.	1935		state
Fitzroy Gas works	Alexandra Pde & George St	1900		regional
Crawford's metalworks	21-3 Annand St Nth Fitzroy	1930		
Murray's Hat Factory	23-29 Argyle St.	1900-10		regional
Irons & Piper boot factory	71 Argyle St.	1880		state
George Pizzey & Son	110-12 Argyle St. & 131-5 Johnston St.	1920		regional
George Pizzey & Son/C.F. Allen	Argyle Place	1890		local
Pfeiffer Engineering	140 Argyle St.	1920		
MacRobertson's head office	214 Argyle St.	c1930		regional
Spicer Bros. boot factory	62 Bell St.	1900		state
Purina Foods	14-20 Best St. Nth Fitzroy	1900/1930		regional
H Gage Furniture Mfg.	9 Birkinhead St.	1890	NFCS	state
James Reilly Flour Mill	433 Brunswick Street	1869		state
Chandler's stores	68-70 Cecil St.	1920		
Gordon Slipper Co./John Bechler	40 Chapel St.	1920		
Lewis & Whitty Blacking Factory	52-54 Charles St.	1880		state
Simmons tobacco factory	Condell St.	1900		regional
Melbourne & Carlton Bakery	25 Egermont St.	1900		
R.Ritter & Son	56-66 Fitzroy St.	1920		
C. Barnett	175 Fitzroy St.	1885		regional
Joseph Lyddy	167-9 Fitzroy St.	1922-3	SFCS	state
Bull's coachbuilding works	354 Fitzroy St.	1890		

Solomon Industries	405 Fitzroy St.	1920		
Johnston & Co. furniture factory	99 George St.	1920		
Federal Trolley & Truck Co.	155 George St.	1930		
McDonald's bakery	62 Gertrude St.	c1880		local
Lawson & Peterson	100 Gore St.	1920		local
Ackman's	239 Gore St.	1920		regional
Argyle Shirt Factory	Gore & Argyle Sts.	1880		local
MacRobertson	Gore St. Johnston to Argyle Sts	1895		state
MacRobertson	372 Gore St. (Argyle to Kerr)	1890-1910		state
MacRobertson	412 Gore St.	1880		state
MacRobertson's engine house	415 Gore St.	1900		state ?
J Imbesi & Sons	25 Grant St. North Fitzroy	1900		
Fitzroy Ironworks	129-31 Greeves St.	1880		state
Moran & Cato	63 Holden St. cnr Rae St. North Fitzroy	1880		state *
National Can Co.	Jameson Street North Fitzroy	1910		
John Guest Boot factory	3-9 John St,	1890		regional
Nicholl's confectionery works	226 Johnston St	1920		
Jenson Hats	7-19 Kerr St.	1900-20		local
MacRobertson's American Candy Co.	157-177 Kerr St.	1890		state
MacRobertson's box factory	171 Kerr St.	1920		state
MacRobertson's bulk store	183 Kerr St	1930		state
Johnston Bros. Furniture	66 Leicester St.	1900		regional
Burston and Treleaven boot factory	68 Leicester St. cnr. Fitzroy St.	1880		state
D. Marshal Engineering	71-5 Leicester St.	1900		
Wynn's boot factory	132-134 Leicester St.	1880		state
Harris boot factory	38 McKean St.	1910		local
British United Shoe My. Co	114-6 Moor St.	1920		regional
Phoenix Chemical Co.	280-282 Napier St.	1880		state
St. Crispin Eng. Co.	cnr Napier & Chapel Sts.	1940		local
C.F. Rojo	Napier St.	1930		local
Lancaster's farrier	423 Napier St.	1890		local
Countryman clothes/Holeproof	Nicholson St.	1900-32		local
Avon Butter Factory	218 Nicholson St.	1920		state
S.T. Nunquam confectioners	413-25 Nicholson St. Carlton	1905		state
Excelsior Broom co	150 Park St.	1910		local
K.G. Luke metal works	28 Queens Pde. North Fitzroy	1925		local
Gerard Industries	81 Queens Pde North Fitzroy	1920		
Prima Wear	120-30 Queens Pde	1930		
Pullen & Co	142 Queens Pde. Nth Fitzroy	1895		regional
Andrew Mills Fabric	186 Queens Pde. North Fitzroy	1920		
Grey & Sons foundry	332 Rae St. Nth Fitzroy	1910		local
A.M. McGregor patternmaker	422 Rae St.	1930		
Henry Taylor aerated water factory	430 Rae St.	1900		
Barrett Bros cordial factory	529 Rae St.	1920		
A. J. Skipper & sons, boot factory	38-40 Reid St. Fitzroy	1900		local
T.W. Delves boot factory	27 Reid St.	1910		
Easy Phit Slipper P.L.	2-8 Rose St.	1930		
Kerr & Rowe furniture factory	19-23 Rose St.	1900		
Vesta Knitting Mills	40 Rose St.	1930		
Lesne Confectionery Co.	50-52 Rose St.	1910		
Anderson & Ritchie foundry	143 Rose St.	1880-1910		state
Abrahams & Sons paper works	134-44 Rose & Young Sts.	1900		
MacRobertson's	156-60 Rose St.	1930		local
MacRobertson's	171 Rose St.	1900		state
MacRobertson's Old Gold factory	198 Rose St.	1900		state
Van Damme's Dairy	40 Scotchmer St.	1930		
Birmacley Margarine	125-7 Scotchmer St.	1936		regional
Edgley's Court Shoe Factory	205-7 Scotchmer St.	1898		regional
MacRobertson's	369-389 Smith St (Argyle to Kerr	1900		state
MacRobertson's	421 Smith St.	1920		state
British United Shoe Machinery Co	423-5 Smith St.	1910		regional
Harrison's Cordial Factory	8-12 Spring St.	1882-4	NFCS	state
Harrison's stables	11-13 Spring St.	1930		state
Ackman's Furniture factory	107-9 St. David St.	1918		regional
D.C. Veitch American roll factory	379 St. Georges Rd. Fitzroy North	c1915		regional

Acme Shirt Factory	13-39 Victoria St.	1890		state
Moran & Cato	95 Victoria St. cnr Brunswick St.	1885		state *
Moran & Cato	111 Victoria St	1885		state *
Romer Knitwear	106 Victoria St.	1920		
Fitzroy Ice Works	95-105 Westgarth St	1890-1910	Demolished 1992	(state)
Sparrow engineering works	121 Westgarth St.	1910		local
Ferguson's Mantle Factory	Wood St.	1890		state
Abrahams' Jute Works	316-18 Young St.	1920-30		local
Roberts & Sons furniture factory	342-344 Young St.	1910		local
	NORTHCOTE			
Alpha Import	98 Arthurton Rd.	c1935		
Smith's bacon works	Bastings St.	1880/1920		local
McLellan & Burge furniture	11 Beaconsfield St.	1920		
Wm. Cox Sulkey Expert	113 Beaconsfield St	1922		regional
Rose's motor works	1-9 Beavers St.	1920		
Australian Broom Co./Fred Wilke	114 Bent St.	1910		local
Northcote Pottery	85a Clyde St. Thornbury	1910		state
Doidges bakehouse	11 Eastment St.	1910		local
Johnston bakery	23 Eastment St	1900		local
Northcote Shoe Co.	54 Eastment St.	1930		local
Venice Bakery	56-8 Eastment St.	1910		local
J.H. Farrer gaskets	154 Fulham Rd. Fairfield	1920		
Joshua Pitt	Gadd St.	1900		state
A. Arrowsmith	41 Gadd St.	c1930		
Unique Knitwear	42 Gadd St.	c1930		
McCrohan's Hat Mills	26 Heidelburg Rd Fairfield	1930		local
J. Porta sawmills	61 Heidelburg Road	1910		regional
Australian Paper Mills	Heidelburg Road Fairfield	1919/1960		regional
Kennedy Taylor	26-36 High St.	1920		
W. Rowe textile eng	644 High St	1930		
Commonwealth Cotton Co.	346 Separation St.	1920		regional
Rhodes & Heron	6-10 St Georges Rd	1925		
Kohane Dye Works	44 St Georges Rd. rear	1920		local
Leeds Dye Works	52 Westgarth Street	1874/1910	NUCS	state
	PRESTON			
Watson & Paterson's bacon works	Dundas St & Plenty Rd.	1862/1900		state
South Preston Tannery	60 High St. & 69 Plenty Rd.	1900		regional
Howe Leather	99-103 High St.	1910		regional
Schofield wool scouring works	Oakover Rd.	1895/1930		local
	COUNTRY			
J. Reilly Flour Mill	Church & Nunn Sts. Benalla	1872	BCS	state
Moodie's machinery works	Carrier St. Benalla	1880		local
Stray & sons blacksmiths	Old Highway, Broadford	1890		local
Australian Paper Mills	Old Highway Broadford	1890		state
Smith's Garage	High St. Chiltern	1900		local
Chiltern Brickworks	Back Lane, Chiltern	1900		state
Graham's Flour Mill	Kirkland Avenue Euroa	1873	NT	state
Euroa Butter and Ice Factory	Boundary Rd Nth. and Factory Rd Euroa	1901	NT	state
Wangaratta Woollen Mills	Textile Avenue Wangaratta	1920		state
Wangaratta Dairy	Hume Highway Wangaratta	1920	NT	local
Wodonga Butter Factory	Lincoln Causeway Wodonga	1926	NT	regional

4. Discussion

Typological assessment

One of the key elements to come out of this survey is the assessment of buildings in terms of a typological framework. While the citations for individual buildings demonstrate the particular characteristics of each site, an overview of the 292 sites shows that building types, as well as function fall into a few distinct categories. This assessment is somewhat subjective because it is based on the familiarity which has come from a very detailed study of both the building fabric and history of industrial development in the northern suburbs. The assessment also draws on experience gained by the authors in other research in the field of industrial heritage, particularly a similar study of industrial sites in Melbourne's Western Region,[1] and specific site studies.

Most of the factories identified in this study can be placed in the following categories, although there are some unique types which are beyond classification. This typology is based on the fabric of the building rather than its function, but often the style, plan, materials and level of decoration of a building is directly related to its function. A particular building may also fit into more than one classification. For example the Yorkshire Brewery is a specialized processing plant where the form of the building is directly related to the technology of brewing but because of its flamboyant French Empire style, with poly-chrome brick decoration, it also fits into the Classical Commercial category

Categories of building types.

1. Residential scale industry

This type of factory is characterised by its domestic scale and appearance. in some cases it could be mistaken for a large but plain terrace house of parish hall. The examples are only one or two storeys with narrow frontages dictated by the size of the residential blocks and with window and door proportions similar to the surrounding houses. They can usually be distinguished by their almost complete coverage of the block and lack of out buildings. They generally date from the 1860s to 1890s and were intended for light manufacturing such as clothing and footwear. Examples in the study area include, Spicer's boot factory in Bell St. Lewis & Whitty's blacking factory in Charles St. the Phoenix Chemical Co. Napier St. and Ferguson's Mantle factory, Wood St. all in Fitzroy, Yates boot factory in Page St. Clifton Hill and Peatt's boot factory in Langridge St. Collingwood

Many inner suburban factories which date from the mid to late nineteenth century are built in a form which mirrors the domestic architecture in which they are situated. Before the 1920s there was little concerted effort to segregate industrial uses from the commercial and residential districts except where the trade was so offensive as to cause an immediate public outcry. In fact, the reverse was often the case, where industry amidst housing was seen as desirable in an age when the workforce had to be within walking distance from their place of work. The style of building reflected the domestic architecture probably for two reasons. This style was in keeping with the environment and so reduced opposition to industry. It was also the predominant form of building, familiar to the carpenters, bricklayers and stonemasons who designed and erected the bulk of buildings in Melbourne, before the trade of architect became common.

2. Specialist processing plants

A number of industries which turned traditional craft skills into mass production required purpose built processing plants to take the large scale equipment and handle bulk raw materials. Breweries, distilleries, tanneries, gasworks, freezing works, rope works, flour mills, etc. were dictated in their form by the actual process. The plant and equipment of these works, such as malting floors, brewing vats, distilation tanks, tan pits, gas retorts, freezing chambers, rope walks, etc., comprised the major part of the factory, often with the building simply forming a skin around equipment suspended in a framework to which the walls were attached. Because of the level of

[1] G. Vines, *Western Region Industrial Heritage Study*, Melbourne's Living Museum of the West, 1989.

capitalisation required to get some of these industries off the ground, the buildings were often elaborately finished. The Yorkshire Brewery is the most prominent example.

This type of building is often the most exciting in terms of industrial heritage, because even when the equipment has been replaced or removed, the building itself can clearly demonstrate how the process was carried out. Other good examples of this factory type in the study area are the Vauxhall and Victoria distilleries, Victoria brewery, Thompson's tannery in Rokeby St. Collingwood, Miller's and Sampson's ropeworks in Brunswick, the Brunswick gas works in Hope St. Dight's flour mill on the Yarra, Reilly's flour mills in Brunswick Street Fitzroy and Benalla, Hoffman's brickworks, Coop's shot tower, the Leeds Dyeworks and the Fitzroy Freezing Works, sadly under demolition as this study was being prepared. Within this group are a few examples of bluestone industrial architecture more often seen in the Footscray-Williamstown area. They include Nettleton's woolworks and the Vauxhall Distillery. Early blustone industrial buildings utilised locally obtained stone to solve practical construction problems of strength and cost. Their early date and substantial nature were the deciding factors in choice of the appropriate building material since brickmaking had not reached the standard required for such massive building works.

3. Workshops

A minor type of building both in its role in industry and the form of the building is the once ubiquitous small, single storey workshop, employed for a variety of manufacturing purposes including carriage building, blacksmiths, foundries, engineers, joineries, furniture makers, etc. These buildings are almost universaly single storey with gable roofs and in the case of the blacksmiths, farriers, carriage builders, motor engineers, and other transport related works, they have a central vehicle entrance flanked by windows. Because these were often the result of a single tradesman or partner's efforts who may employ between one and a dozen hands, their size is remarkably consistent. Examples include Lawson & Paterson Gore St., Bull's coachbuilding works, Fitzroy St., The Fitzroy ironworks, Greeves St., Federal Truck and Trolley Co. in George St., Lancaster's Farrier in Napier St. and Abrahams' Jute works in Young St.

4. Classical commercial

A far more elaborate form of factory developed as part of the boom of the 1880s and reflected the architectural fashions of the period as well as the wealth and status of the companies which built them. Moderate sized firms such as R.J. Henderson, Henry Hooper & Co. The United Shoe Machinery Co. and Moran & Cato employed simple forms of neo-classical architecture for their facades. Even some smaller boot factories such as Spry's and Burston and Treleaven had elaborate classical detailing echoing the styles of the inner city terrace housing. Some larger firms such as Denton's Hats and the Foster Lager Brewing Co. applied very imposing classical facades to their very large works. The fashion was taken to extremes by some manufacturers, particularly the brewers, with the Yorkshire Brewery being the most elaborate example. The style for flamboyant factory facades appears to have faded by the early twentieth century.

5. Multi-storey factories

By the early twentieth century, the cost of land and shortage of space for factories close to the city sent many manufacturers upward in their quest for factory expansion. Coupled with these considerations, the improvements in building technology allowed higher buildings to be erected without excessive cost, while certain industries benefited from the speedy transfer of part processed items between operators and levels in a compact factory. The earliest multi-storey factories (ie. those with three or more floors) appeared in the footwear industry around 1910. Earlier examples of multi-storey factories are found in a few specific industries where the process demanded 3 or more storeys such as flour mills, distilleries and brew towers. A very few particularly large general manufacturers reached three storeys in the nineteenth century. The Phoenix Clothing Factory in King St. Melbourne and Denton's Hats in Abbotsford are rare examples of such factories.

By the 1930s multi-storey factories had become commonplace, particularly in textile and footwear industries. Shoe factories such as Trescowthick's Clifton Hill factory, Llewellyn's and William's

boot factories changed the face of that industry in Collingwood. MacRobertson's built progressively higher as it expanded its Fitzroy confectionery works, culminating in the seven storey 'Old Gold' factory. Clothing factories such as Staley and Staley in Brunswick and Austral Hats in Abbotsford demonstrated the scale of manufacture being carried out by the 1930s, while Rawleigh's Brunswick factory demonstrates another use for the building form.

Initially built in brick, these works were some of the earliest to adopt new materials such as reinforced concrete for window and door lintels, and for reinforcing bands in the brickwork as well as asbestos cement sheeting, steel framing and total reinforced concrete construction.

6. The shed principal

The 'shed principle', was a term used in England, and promoted by William Fairbairn, which referred to a single storey factory illuminated by sawtooth roof lights facing north in the northern hemisphere, but turned around to the south in Australia to ensure indirect light flooded the entire workplace. The building type was first applied to the woollen mills and had become common in England by the 1870s. Its use in Australia was also connected with woollen mills in Geelong and Melbourne's western suburbs in the 1860s and 1870s and the top showroom floor of many woolstores.

The single storey sawtooth roof factories of the outer industrial areas can be seen as the antithesis of the multi-storey factories in the inner suburbs. The principle requirement of these new factories was a large, unobstructed, single level for production-line operations at a mass-production scale. Cheap land on the fringes of Melbourne allowed the factories to sprawl. The best examples are Lincoln Mills, and Hilton in Coburg. An unusual example of a very large sawtooth roof factory in the inner suburbs is Yarra Falls in Abbotsford, which was able to take advantage of a large, unoccupied site near the Yarra River in Abbotsford.

These factories have timber or steel frames and are clad in corrugated iron, the more substantial having brick walls to the street frontages and sometimes all external walls. The sawtooth roof factory had become the standard form of large industrial building by the 1940s and has only recently been displaced in the last decade, by steel clearspan and prefabricated, prestressed concrete construction.

7. 'Moderne' facades

Within the range of sawtooth factories built in the 1930s are those smaller buildings which gave the utilitarian sawtooth roof shed slightly greater prestige by adding a facade in the then fashionable 'Streamlined Moderne' style. This was executed in brick, often rendered and can be instantly distinguished by the horizontal lines set into the brick or stucco and the vertical motif of turrets or fins over the main office entrance and sometimes other entrances. Curved walls and curved sections of parapet are very common. The architecture is usually pedestrian using standard features rather than demonstrating any architectural excellence. Lygon Street Brunswick, seems to have a disproportionate number of such factories which usually started life as textile mills. These include Red Robin at numbers 162, 236 & 240, G. Burgin at 260, and Castle Knitwear at 326. Latoof & Callil in Brunswick Rdoad and the Union Knitting Mills in Coburg are other typical examples. The Streamlined Moderne style was also used by more proficient industrial architects, but this is covered in the next style.

8. Elaborate and distinctive

Several large factories were executed in a very self-consciously stylish manner to designs by prominent and fashionable architects in particularly avant-garde styles. The Avon Butter Factory in Nicholson St. has a Moorish or Spanish Mission character with unusual detail in coloured glazed bricks and wrought iron. The old Brunswick Market/ Henderson Boxes in Ballarat St. is the only other example of such an elaborate Spanish Mission factory. William Pitt reinterpreted the Edwardian decorative treatment for his designs for Foy & Gibson's factories in Oxford and Cambridge Streets, Collingwood.

As noted above, the Streamlined Moderne was favoured for factories of the 30s as it expressed the up-to-date and progressive attitude of the new firms which had been established following the depression. Birmacley margarine in Scotchmer St., Handley & Tilley in Abbotsford and True-mould Tyres in Clifton Hill are all fine examples of the style. The unique style of Walter Burley Griffin's Melbourne architectural office is expressed in the Joseph Lyddy building in Fitzroy St. Fitzroy. while the Art Deco which inspired Griffin can also be seen in the severe Byfas/Yarra Falls building in Trennery Crescent, Abbotsford. Another popular style of the later part of our study period is the International or Dutch Modernist seen in such large and imposing factories as the Oakley & Parkes designed Spicer's Paper mills, A.R. Butler's additions to Lincoln Mills and the Tip Top bakery in Brunswick.

9. Edwardian and Inter-war

The distinctive style of the period from about 1910 to the late 30s warrants a classification of its own as this appears to have been a time of considerable expansion in manufacturing and the adoption of new construction techniques in a remarkably consistent group of factories. Brick pilastered facades often gable ended with stuccoed decoration to the sills, lintels and bands in the brickwork, large steel hopper sash windows, and the beginnings of the extensive use of concrete and steel for window and door lintels, characterise this style. The single storey gable ended factory of this type is ubiquitous, some examples being the Ideal Box Factory in Rokeby St., Davis pickle factory in Rupert St. and Trescowthick's Hoddle St. boot factory.

10. Functional severe

The 1930s produced a particularly plain and functional group of factories which are clearly expressive of their period. Basic materials of brick, concrete and steel are used without any embellishment, G.N. Raymond's last factory in Easy St. Collingwood. The Gordon Slipper Co., Anderson & Ritchie, and Romar Knitwear in Fitzroy are a few of the many small factories of the period to eschew decoration altogether, while the bulk and repetitive pattern of the British United Shoe Machinery Co. in Alexandra Parade demonstrates that this sort of treatment can still result in an impressive structure.

11. Uncharacteristic

A small number of factories do not fit easily in any of the above categories because they were built outside of any industrial tradition. Sometimes, as in the case of Bates Cocoa Mills which began life as a Common School, the building was erected for another purpose, and adapted to manufacture with minimal alteration. Others like the Lane Shirt Factory in Union St. Brunswick, were factory extensions to shopfront retail outlets, and so are more indicative of the trends in commercial building architecture.

Locational factors

The concentrations of factories can be explained historically in terms of various periods of industrial expansion in Melbourne while there is an overlay of periods of industrial development in many areas

In the pre gold rush settlement period the earliest factories were spread among the residential areas, providing domestic goods to the local population. There is a very low survival rate for these factories. The gold rush and post gold rush period saw industrial expansion on a massive scale with the development of specialized industries tied to specific locations. Export markets for partly-processed agricultural products stimulated the development of tanneries and woolworks on the banks of the Yarra, while the increasing population supported a concentration of breweries and distilleries in the inner suburbs. Survival of the original buildings is still rare although the sites continued to be used.

The boom years of the 1880s saw more factories established in the traditional manufacturing areas of Collingwood and Fitzroy. Many factories expanded to the detriment of the surrounding

residences. Certain forms of manufacture gained an impetus with the building boom by supplying raw materials. The brickworks and potteries of Brunswick and Northcote were dependent on the geology for their location and subsequent expansion was facilitated by the routes of railways. Sawmills and joineries also depended on proximity to railways to prosper. Redevelopment of the now redundant clay industry sites has resulted in the loss of almost all these factories. Hoffman's Brickworks is now an anachronism in what was once the centre of Victoria's brick industry.

Suburban development rather than industrial growth seems to be the characteristic element in the period around the turn of the century although by the 1920s, new industrial centres were established to take advantage of the new labour forces in these suburbs. Preston became a major centre for bacon works and tanneries as these noxious trades were discouraged from the inner city riverside locations. Brunswick and Coburg took up much of the expansion of the textile industry following increased tariff protection.

Also by the 1920s, the first attempts at planning for industrial growth were made but apart from confirming the already established industrial areas little changed. In the 1950s a renewed attempt at planning brought some change, directing new industry into specifically zoned industrial areas on the transport corridors on the fringe of Melbourne.

Conservation of industrial buildings

Conservation of industrial heritage cannot be carried out in the same terms and with the same set of assumptions as have been applied to the so far generally accepted built heritage of Victoria, that is the aesthetically pleasing, architecturally elaborate Colonial, Victorian, Edwardian, Gothic Revival, and other styles of middle class villa and terrace housing, public institutions, churches, commercial premises and the like. As indicated in Section 1 above, the significance of factories lies in a quite different direction.

The retention of the significance of an industrial site is often tied to the continuation of the industrial activity which gives the site meaning. This is not to say that an old factory no longer carrying out its original function is on no cultural significance, but in almost every case, where the activity ceases, the significance of the site is diminished. It is rarely possible, or desirable to maintain nineteenth century manufacturing processes, although in a surprising number of cases the work being carried out in Melbourne factories differs very little from that of 100 years ago. However, the maintenance of industrial activity in a significant factory building is the most appropriate method of conserving that building. Although, paradoxically, this places a different kind of stress on the significant fabric of a building. New equipment is required in order to modernise, the building must be modified to take the new machinery, walls sometimes must be breached and doors and windows blocked in. Major changes to the historic fabric of factories are often necessary just to satisfy current building or labour and industry regulations.

Much can be done to acheive recognitioon of the value of historic industrial buildings - the current trend of factory and warehouse conversions for inner-city apartments demonstrates their viable re-use and the growing appreciation of a different aesthetic sence; one that finds character and beauty in the utilitarian, but often unusual, factory architecture of the first hundred years of industrial activity in Melbourne.

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Appendix Alphabetical list of sites investigated

Abbotsford Brewery	Church St. Abbotsford near Yarra	1910
Abrahams & Sons paper works	134-44 Rose & Young Sts. Fitzroy	1900
Abrahams' Jute Works	316-18 Young St. Fitzroy	1920-30
Ace Billiard Tables	52-54 Charles St. Fitzroy	c1950
Ackman's	239 Gore St. Fitzroy	1920
Ackman's Furniture factory	107-9 St. David St. Fitzroy	1918
Acme Shirt Factory	13-39 Victoria St. Fitzroy	1890
Aitken's Victoria Distillery	Northumberland St. Collingwood	1862
Albion Clothing Co.	29-31 Weston St. Brunswick	1920-60
Alex Sturrock & sons	125 Brunswick Rd. Brunswick	1900
Allen, C.F.	Argyle Place Fitzroy	1920
Alma Woolscouring Pty Ltd.	663 Victoria St. Abbotsford	1920
Alpha Import	98 Arthurton Rd. Northcote	c1935
Alpine Flour Factory	139 Langridge St. Abbotsford	1910
Aluminium and Plate Co.	655 Victoria St. Abbotsford	1929
American Blacking Co.	41-7 Dally St. Clifton Hill	1890
Anderson & Brooks boot factory	Marshall Place Clifton Hill	1920
Anderson & Ritchie	132-134 Leicester St. Fitzroy	c1950
Anderson & Ritchie foundry	143 Rose St. Fitzroy	1910
Apps, William painter	190 Brunswick St. Brunswick	1920
Arch Rest shoes	200 Noone St. Clifton Hill	1910
Argyle Shirt Factory	Gore & Argyle Sts. Fitzroy	1880
Arnall & Jackson	393 Barkley St. Brunswick	c1920
Arrowsmith, A.	41 Gadd St. Northcote	c1930
Arthur Manufacturing Pty Ltd.	15-17 Bedford St. Collingwood	1930
Atlas Boot Co.	3-9 John St. Fitzroy	1900
Austral Hat Mills	112 Trennery Crescent Abbotsford	1900
Austral Silk and Cotton Mills	112 Trennery Crescent Abbotsford	1928
Australian Asbestos Co.	Grosvenor St. Abbotsford	1889
Australian Broom Co.	114 Bent St. Northcote	1910
Australian Consolidated Hosiery	480 Albion St. Brunswick West	c1960
Australian Licorice Co.	Victoria & Rosser Sts. Brunswick	1898/1922
Australian Paper Mills	Heidelburg Road Fairfield	1919/1960
Australian Paper Mills	Old Highway Broadford	1890
Australian Process Shoe Co.	Groom & Rosneath Sts. NW Clifton Hill	1920
Avon Butter Factory	218 Nicholson St. Fitzroy	1920
Avon Fans Ltd.	174 Alexandra Pde. Clifton Hill	1920-50
Balmoral Knitting Mills	Lygon St and Brunswick Rd. Brunswick	1920
Barber, Alfred	94 Alexandra Pde. Clifton Hill	1887
Barnett, C	175 Fitzroy St. Fitzroy	1885
Barrett Bros & Bursten	Northumberland St. Collingwood	c1930
Barrett Bros cordial factory	529 Rae St. North Fitzroy	1920
Barron, J, & Sons P.L.	171 Kerr St. Fitzroy	c1950
Barron, J. & sons woolworks	8-12 Spring St. Fitzroy	c1920
Bas Manufacturing Pty Ltd. essence mfg.	9 Birkinhead St. Fitzroy	1930
Bates Cocoa Mills	2 Bond St. Abbotsford	1880
Beard & Sisson wheelwrights	155 Easy St. Collingwood	1910
Bechler, John boot factory	40 Chapel St. Fitzroy	c1960
Beighton, J. ironworks	143 Rose St. Fitzroy	1900
Beith & Schiess & Co	108 Sackville St. Collingwood	1883
Beith & Schiess & Co	110 Sackville St. Collingwood	1899
Beith & Schiess & Co	112 Sackville St. Collingwood	1888
Belleland Box Co.	Ballarat Street Brunswick	c1950
Benjamin's clothing factory	320-4 Wellington St. Collingwood	1930
Bennet's hay store	15-33 Queens Pde. Clifton Hill	1872
Beta Knitting Mills Pty Ltd.	125 Brunswick Rd. Brunswick	1900
Bickford, J.C. hair works	62 Alexandra Pde. & Gold St. Clifton Hill	1880
Birmacley Margarine	125-7 Scotchmer St. North Fitzroy	1936
Blackman & Rose shoe factory	200 Noone St. Clifton Hill	1930
Blakeley's Knives	218 Nicholson St. Fitzroy	1967
Boel, J. ice works	95-105 Westgarth St. Fitzroy	1890-1910

Bone, T. cabinet works	12 Maton St. Clifton Hill	1930
Bourke & Cooke boot factory	24 Groom St. Clifton Hill	1930
Box's Hair Works	62 Alexandra Pde. & Gold St. Clifton Hill	1880
Bradley & Son,	3 Bedford St. Collingwood	1891
Brewer, W.J. timber yard	29 Grant St. Clifton Hill	1900
Brilliant Hosiery Mills	Lygon St and Brunswick Rd. Brunswick	1920
British United Shoe Machinery Co	200 Alexandra Pde. Fitzroy	1935
British United Shoe Machinery Co	423-5 Smith St. Fitzroy	1910
British United Shoe Machinery Co.	114-6 Moor St. Fitzroy	1920
Brown & McGann	15-17 Bedford St. Collingwood	1920
Brunswick Gas and Coke Co.	1-35 Hope St. Brunswick	1889-91
Brunswick Market	Ballarat Street Brunswick	1930
Bryce & Duncan	155 Easy St. Collingwood	1930
Buckstein Hosiery Mills	326-48 Lygon St. Brunswick East	1930
Buffalo Trident	110 Union Street Brunswick	1920
Bull's coachbuilding works	354 Fitzroy St. Fitzroy	1890
Burgin, G.	260-74 Lygon St. Brunswick East	1930
Burston and Treleaven boot factory	68 Leicester St. cnr. Fitzroy St. Fitzroy	1880
Burston, Samuel and Co. Ltd	Northumberland St. Collingwood	1910
Byfas	8-12 Trennery Crs. Abbotsford	1940
Byrne & Freer	280-282 Napier St. Fitzroy	1905
Carew, John & Co	260-90 Alexandra Pde. East Clifton Hill	1905
Cash, W.E. metal works	200-216 Sydney Rd. Coburg	1898-1915
Castle Knitting Mill	326-48 Lygon St. Brunswick East	1930
Cereal Foods Pty Ltd.	66 Brunswick Rd. Brunswick	1920-23
Chadwick, T. malt store	61 Islington St. Collingwood	1878
Chandler & Folley,	1 Manallak St. Brunswick	1910
Chandler's stores	68-70 Cecil St. Fitzroy	1920
Chasler & Ried,	260-90 Alexandra Pde. East Clifton Hill	1905
Chidsey & Rodgers	210 Alexandra Pde. East Clifton Hill	1920
Chiltern Brickworks	Back Lane, Chiltern	1900
City Metal Works	94 Alexandra Pde. Clifton Hill	1904
Clifton Brick Co.	Dawson Street Brunswick	1883
Clifton Hill Sawmills	19-27 Grant St. Clifton Hill	1880
Clifton Hill Shoe Co.	380-406 Hoddle St. Abbotsford	1913
Clifton Shoe Co	1 Parslow St. Clifton Hill	1930
Clothing factory/Sovrano Knitwear	16-20 Michael St. Brunswick	1895/1930
Colbath boot factory	71 Argyle St. Fitzroy	1891
Collingwood, Fitz. & Dist. Gas Co.	Alexandra Pde & George St. Fitzroy	1859
Colonial Manufacturing Co.	132-134 Leicester St. Fitzroy	1880
Commonwealth Cotton Co.	346 Separation St. Northcote	1920
Commonwealth Harness Factory	24 Groom St. Clifton Hill	c1916
Conroy Bunn & Co. clothing factory	82 Bell St. Fitzroy	1895
Coop's Shot Tower	94 Alexandra Pde. Clifton Hill	1890
Cork & Crown Seal Co.	2-6 Grant St. North Fitzroy	1920
Countryman clothes/Holeproof	Nicholson St. Fitzroy	1900-32
Cox, Wm. Sulkey Expert	113 Beaconsfield St. Northcote	1922
Crankless Engines Ltd.	129-31 Greeves St. Fitzroy	1930
Crawford's metalworks	21-3 Annand St Nth Fitzroy	1930
Cresco Health Food Co. Pty Ltd.	14-20 Best St. Nth Fitzroy	1910
Cressy Engineering Co.	50-52 Rose St. Fitzroy	c1960
Crucible Steel Works/	21 Michael Street Brunswick	1889/1930
Crusader Plate	651-653 Victoria St. Abbotsford	1937
Cyclone Co. of Australia	Gipps St. Abbotsford	1910
Darling, John & Sons flour mill	off Trennery Crescent Abbotsford	1909
Davis & Baird steel foundry	17-29 Brunswick Rd. Brunswick	1910
Davis & Smith, ice works	95-105 Westgarth St. Fitzroy	1890-1910
Davis boot factory	62 Bell St. Fitzroy	1900
Davis' pickle and sauce factory	89 Rupert St. Collingwood	1920
Dawn Mfg Co.	Service St. Coburg	1918
Delves, T.W. boot factory	27 Reid St. North Fitzroy	1910
Dennison Pty Ltd.	Inverness St. Brunswick	1919
Denton's Hats	48-60 Nicholson St. Abbotsford	1880

Denton's Hats scouring works	23 Mollison St. Abbotsford	1915
Derrick Manufacturing Co.	63 Cambridge St. & 44 Oxford St. Collingwood	1920
Dight's Flour Mill	off Trennery Crescent Abbotsford	1841/1909
Dixon, William, Stockport hat factory	176 Noone St. Clifton Hill	1880
Doidges bakehouse	11 Eastment St. Northcote	1910
Dominion Knitting Mills Pty Ltd.	20 Grey Street & 19 Hodgson St. Brunswick	1940
Donley, James, cordial factory	9 Birkinhead St. Fitzroy	c1890
Dorrington & Railton	Gore & Argyle Sts. Fitzroy	1930
Douglas & Wilson engineers	2 Easy St. Collingwood	1895
Douglas, J.P. knife and last mfgr.	2 Easy St. Collingwood	1910
Downs Cordage Works	64-72 Tinning St. & 7-9 Cassells St. Brunswick	1890/1908
Dyason's cordial factory	63 Cambridge St. & 44 Oxford St. Collingwood	1890
Easyphit Slipper Co.	Argyle Place Fitzroy	1930
Easyphit Slipper P.L.	2-8 Rose St. Fitzroy	1930
Edgley's Court Shoe Factory	205-7 Scotchmer St.North Fitzroy	1898
Edward's straw hat factory	23-29 Argyle St. Fitzroy	1891
Ellen, C.E. jam factory	9 Birkinhead St. Fitzroy	c1940
Epicure Sauce Co.	63 Cambridge St. & 44 Oxford St. Collingwood	1920
Euroa Butter and Ice Factory	Boundary Rd Nth. and Factory Rd Euroa	1901
Excelsior Broom co	150 Park St. Fitzroy	1910
Faiman, Samuel, furrier	443 Albion St. Brunswick West	c1920
Farrer, J.H. gaskets	154 Fulham Rd. Fairfield	1920
Federal Trolley & Truck Co.	155 George St. Fitzroy	1935
Ferguson's Mantle Factory	2 Wood St. Fitzroy	1890
Ferry's Pottery weigh-bridge	310 Albert Street Brunswick	1887
Fillingham's shoe factory	16-26 Dally St. Clifton Hill	1920
Finchett shoe factory	25 Wilson Ave. Brunswick	1920
Finchett, A.L. shirt maker	1a Union St. rear & Lt. Gold St. Brunswick	1930
Fitzpatrick Bros.	218 Nicholson St. Fitzroy	1920
Fitzroy Box Factory	171 Kerr St. Fitzroy	1920
Fitzroy Gas works	Alexandra Pde & George St. Fitzroy	1859
Fitzroy Ice Works	95-105 Westgarth St. Fitzroy	1890-1910
Fitzroy Ironworks	129-31 Greeves St. Fitzroy	1880
Fitzroy Refrigeration & Ice Making Co.	95-105 Westgarth St. Fitzroy	1890-1910
Foster Lager Brewing Co	15 Rokeby St. Collingwood	1888
Foy and Gibson	Oxford St. & Cambridge St. Collingwood	1884-1930
Frieze Bros. clothing factory	2 Hoddle St and Ferguson St. Abbotsford	1920
Gage, H. Furniture Mfg.	9 Birkinhead St. Fitzroy	1903
Gann, J. hosiery factory	3 Bedford St. Collingwood	1930
Gann, J. hosiery factory	5 Bedford St. inc. Collingwood	1830
Gerard Industries	81 Queens Pde North Fitzroy	1920
Gillespie, Aitken & Scott flour mill	off Trennery Crescent Abbotsford	1888
Gordon Bros.	110 Union Street Brunswick	1930
Gordon Slipper Co.	40 Chapel St. Fitzroy	c1950
Gordon, H.C. Pty Ltd.	132-134 Leicester St. Fitzroy	1920
Graham's Flour Mill	Kirkland Avenue Euroa	1873
Graham, Francis, importer	82 Bell St. Fitzroy	c1880
Green Bros	3 Bedford St. Collingwood	1895
Grey & Sons foundry	332 Rae St. North Fitzroy	1910
Grimson Shoe Machinery Co.	247-253 Johnston St. Abbotsford	1930
Guest, John Boot factory	3-9 John St. Fitzroy	1890
Hall Bros	174 Alexandra Pde. Clifton Hill	1920-50
Handley & Tilley	655 Victoria St. Abbotsford	1929
Handley Bros.	651-653 Victoria St. Abbotsford	1937
Hansen, J.C. Pty Ltd	132-134 Leicester St. Fitzroy	1910
Hardenack, P. Tannery	60 High St. & 69 Plenty Rd. Preston Preston	1900
Harkness Shoes Pty Ltd.	16 Islington St. Collingwood	1928
Harold Shoe Co.	3-9 John St. Fitzroy	1920
Harold Shoe Factory	205 Gipps & Nicholson Sts. Abbotsford	1915
Harris boot factory	38 McKean St. North Fitzroy	1910
Harris, F.A. cordial factory	9 Birkinhead St. Fitzroy	1891

Harrison's Cordial Factory	8-12 Spring St. Fitzroy	1882-4
Harrison's stables	11-13 Spring St. & 12-14 Argyle St. Fitzroy	1930
Hatcher's laundry	16-24 Victoria Crescent Abbotsford	1910
Henderson Shirt Factory	337-9 Brunswick Rd. Brunswick	1900
Henderson's Boxes	393 Barkley St. Brunswick	c1920
Henderson's Boxes	Ballarat Street Brunswick	c1960
Herley, T. & Co.	Oakover Rd. Preston	1910
Hill Norman & Beard organ factory	6-10 Page St. Clifton Hill	1927
Hilton Hosiery	480 Albion St. Brunswick West	c1940
Hilton knitting Mills/Kayser	51 Normanby St. Coburg	1920
Hoadly & MacRobertson licorice	Victoria & Rosser Sts. Brunswick	1898/1922
Hoffman Brick & Potteries weigh-bridge	310 Albert Street Brunswick	1900
Hoffman Patent Brick and Tile Co	Dawson Street Brunswick	1883
Holeproof	6 Merri St. Brunswick	1930
Hood, James, & Co	61 Islington St. Collingwood	1878/1928
Hooper's Store	481 Sydney Rd. Brunswick	1880
Hooper, Walter H. box factory	156-60 Rose St. Fitzroy	19c1890
Horne & Son	129-31 Greeves St. Fitzroy	1880
Hotton, Arthur saddle & harness maker	5 Bedford St. inc. Collingwood	1905
Howe Leather	99-103 High St. Preston	1910
Howgate & Hellings boot factory	62 Bell St. Fitzroy	1910
Hughes & Preston	94 Alexandra Pde. Clifton Hill	1890
Hughes, J. B.	110 Union Street Brunswick	1910
Hurst, R. boot factory	2-6 Grant St. North Fitzroy	1905
Hutchinson Flour Mill	Hartington Street Glenroy	1930
Ideal Box Factory	92-94 Rokeby St. Collingwood	1925
Imbesi, J. & Sons	25 Grant St. North Fitzroy	1900
Ingot Metals/Dawson Foundry	430 Victoria St. rear Brunswick	1935-40
Irons & Piper boot factory	71 Argyle St. Fitzroy	1880
Jackson & Eckersall/	18 Michael St. Brunswick	1910
Jason Stores	15-17 Bedford St. Collingwood	c1940
Jay Joy Knitting Mills	134-44 Rose St. Fitzroy	c1950
Jenkins' boot factory	Victoria & Sedgeman Sts. Brunswick	1900
Jenson Hats	7-19 Kerr St. Fitzroy	1900-20
Jewell slipper Co.	3-9 John St. Fitzroy	1905
Johnston & Beighton,	143 Rose St. Fitzroy	1895
Johnston & Co. furniture factory	99 George St. Fitzroy	1920
Johnston bakery	23 Eastment St. Northcote	1900
Johnston Bros. Furniture	66 Leicester St. Fitzroy	1900
Johnston, Mrs Eleanor	337-9 Brunswick Rd. Brunswick	1900
Jones Swann boot factory	Groom & Rosneath Sts. NW Clifton Hill	1930
Joyce & Howe Pty Ltd boo factory	2-6 Grant St. North Fitzroy	1930
Kaora Worsted Mill	cnr Cope & Stock Sts. Coburg	1920
Kennedy Taylor	26-36 High St. Northcote	1920
Kerr & Rowe furniture factory	19-23 Rose St. Fitzroy	1900
Keyto Shoe Co. boot factory	68 Leicester St. cnr. Fitzroy St. Fitzroy	c1930
King, Smith & Kenihan bacon works	Bastings St. Northcote	1880/1920
Kodak	Southampton Crs. Abbotsford	1928
Kohane Dye Works	44 St Georges Rd. rear Northcote	1920
Kohane, F. straw hat works	3-9 John St. Fitzroy	1930
Kozequilt Co. Pty Ltd.	44-66 Fitzroy St. Fitzroy	c1930
La Mode Corset Industries	13-39 Victoria St. Fitzroy	c1940
Lancaster's farrier	423 Napier St. Fitzroy	1890
Lane Shirt Factory	1a Union St. rear & Lt. Gold St. Brunswick	1890/1930
Lang, Samuel & Co.	62 Bell St. Fitzroy	1891
Latoof & Callil clothing factory	17-29 Brunswick Rd. Brunswick	1935
Lattner Hat Factory	20 Dawson St. Brunswick	c1935
Laver Bros. preserving factory	36-44 Cambridge St. Collingwood	1890
Lawrence, William, dyeworks	52 Westgarth Street Northcote	1874/1910
Lawson & Peterson	100 Gore St. Fitzroy	1920
Layton's boot factory	71 Argyle St. Fitzroy	1920

Leadenhall Tanneries	260-90 Alexandra Pde. East Clifton Hill	1890-1950
Leeds Dying and Chemical Works P.L.	52 Westgarth Street Northcote	1874/1910
Lesne Confectionery Co.	50-52 Rose St. Fitzroy	1910
Levin & Co. Pty Ltd.	176 Noone St. Clifton Hill	1930
Levin Cuttings Pty Ltd	Condell St. Fitzroy	c1950
Lewis & Whitty Blacking Factory	52-54 Charles St. Fitzroy	1880
Lewis & Whitty,	230 Alexandra Pde. East Clifton Hill	1910
Lewis, W. clothing factory	5 Bedford St. inc. Collingwood	1900
Lincoln Mills	82-92 Gaffney St. Coburg	1918/40
Llewellyns Shoe Co.	408-420 Hoddle St. Abbotsford	1911
Lockman stairbuilder	66 Brunswick Rd. Brunswick	1925
Luke, K.G. metal works	28 Queens Pde. North Fitzroy	1925
Luton Hat Works	37 Queens Pde. Clifton Hill	1897
Lux Foundry	1-35 Hope St. Brunswick	1904-5
Luxford mattress factory	52-54 Charles St. Fitzroy	1910
Lyddy, Joseph polish factory	167-9 Fitzroy St. Fitzroy	1922-3
Lynn Shoes Pty Ltd	38 McKean St. North Fitzroy	1930
Lyon & Co. saftey blasting powder	off Trennery Crescent Abbotsford	c1870
Lyons boot factory	Argyle Place Fitzroy	1895
MacRobertson's	171 Rose St. Fitzroy	1900
MacRobertson's	372 Gore St. (Argyle to Kerr) Fitzroy	1890-1910
MacRobertson's	412 Gore St. Fitzroy	1880
MacRobertson's American Candy Co.	157 Kerr St. Fitzroy	1890
MacRobertson's box factory	156-60 Rose St. Fitzroy	1930
MacRobertson's box factory	171 Kerr St. Fitzroy	1920
MacRobertson's bulk store	183 Kerr St Fitzroy	1930
MacRobertson's engine house	415 Gore St. Fitzroy	1900
MacRobertson's garage and workshop	420 Gore St. Fitzroy	c1930
MacRobertson's garage and workshop	427-435 Smith St. Fitzroy	1920
MacRobertson's	Gore St. Johnston to Argyle Sts. Fitzroy	1895
MacRobertson's head office	214 Argyle St. Fitzroy	c1930
MacRobertson's offices	369-389 Smith St (Argyle to Kerr) Fitzroy	1900
MacRobertson's Old Gold factory	198 Rose St. Fitzroy	1900
Mann, H.H.	1 Manallak St. Brunswick	1910
Marshal, D. Engineering	71-5 Leicester St. Fitzroy	1900
Mayes, Colin and Ivan (Colvan)	125-7 Scotchmer St. North Fitzroy	1956
McBean boot factory	45 Hotham St. Abbotsford	1910
McColl Electrical Works Pty Ltd	114-6 Moor St. Fitzroy	c1930
McCrohan's Hat Mills	26 Heidelburg Rd Fairfield	c1930
McCutcheon & Co. box factory	156-60 Rose St. Fitzroy	c1910
McDonald's bakery	62 Gertrude St. Fitzroy	c1880
McGann, Richard, & Co.	132-134 Leicester St. Fitzroy	1900
McGann, Richard, boot factory	15-17 Bedford St. Collingwood	1892
McGann, Robert, boot factory	40 Chapel St. Fitzroy	c1920
McGregor & Co. flour mill	Kirkland Avenue Euroa	1914
McGregor, A.M. patternmaker	422 Rae St. North Fitzroy	c1930
McIlwraith's Melbourne Leadworks	94 Alexandra Pde. Clifton Hill	1907
Mclaughlin's boot factory	15-17 Bedford St. Collingwood	1920
McLellan & Burge furniture	11 Beaconsfield St. Northcote	1920
Mei & Picci stone cutting works	3-9 John St. Fitzroy	c1940
Meik Bros	15-17 Bedford St. Collingwood	c1940
Melbourne & Carlton Bakery	25 Egermont St. Fitzroy	1900
Melbourne Boot Manufacturing Co.	628-32 Smith St. Clifton Hill	1905
Melbourne Brewing and Distillery Co.	Northumberland St. Collingwood	1894
Melbourne Co-operative Brewing Co.	Church St. Abbotsford near Yarra	1910
Melbourne Flour Milling Co. Ltd.	off Trennery Crescent Abbotsford	1891
Melbourne Lead Works shot tower	94 Alexandra Pde. Clifton Hill	1907
Meserial joinery works	82 Bell St. Fitzroy	1930
Metropolitan Gas Co.	1-35 Hope St. Brunswick	1904
Metropolitan Gas Co.	Alexandra Pde & George St. Fitzroy	1890
Miller, Percy knife manufacturer	328-334 Johnston St. Abbotsford	1910
Millers Ropeworks	Dawson Street Brunswick	1909
Montecassino Knitting Mills	82-94 John St. Brunswick	1930-40
Moodie's machinery works	Carrier St. Benalla	1880

Moonee Valley Aerated Water Co.	9 Birkinhead St. Fitzroy	1895
Moran & Cato	63 Holden St. cnr Rae St. North Fitzroy	1880
Moran & Cato	95 Victoria St. cnr Brunswick St. Fitzroy	1885
Moran & Cato	111 Victoria St. Fitzroy	1885
Morris and Sheehan	132-134 Leicester St. Fitzroy	1905
Murray's confectionery works	74 De Carle St. Brunswick	1920
Murray's Hat Factory	23-29 Argyle St. Fitzroy	1900-10
Murray, Wm. woolworks	457 Hoddle St. Abbotsford	1918
Nation, Alfred & Son	Northumberland St. Collingwood	1885
National Can Co.	Jameson Street North Fitzroy	1910
Nettleton Wool Works	663 Victoria St. Abbotsford	1861
Newmark & Co. Pty Ltd.	260-90 Alexandra Pde. East Clifton Hill	1910
Newton's underclothing factory	5 Bedford St. inc. Collingwood	1890
Nicholl's confectionery works	226 Johnston St. Fitzroy	1920
Nodrum, Charles & Co. Tannery	60 High St. & 69 Plenty Rd. Preston Preston	1920
Norgrove & Colbath boot factory	71 Argyle St. Fitzroy	1891
Northcote Pottery	85a Clyde St. Thornbury	1910
Northcote Shoe Co.	54 Eastment St. Northcote	1930
Nunquam, S.T. confectioners	413-25 Nicholson St. Carlton	1905
Oakley's Foundry	128 Weston St. Brunswick	1890/1930
Olsen clothing factory	437 Victoria St. Brunswick	1910
Oshlack House	1a Union St. rear & Lt. Gold St. Brunswick	1930
Page & Burnes	2a Charles St. Brunswick	1900
Parker engineering works	142 Queens Pde. North Fitzroy	1891
Parker Shoe Co.	259 Queens Pde. Clifton Hill	1920
Parson's & Lewis hair works	52-54 Charles St. Fitzroy	1910
Payne, A.C. heel manufacturer	5 Bedford St. inc. Collingwood	1820
Peatt, Wm. Boot Mfg	59 Langridge St. Abbotsford	1906/1920
Peerless Silk Mills	1 Manallak St. Brunswick	1910
Perlin Bttrs (Aust) Pty Ltd.	68 Leicester St. cnr. Fitzroy St. Fitzroy	1930
Phoenix Biscuit Co.	41 Grosvenor St. Abbotsford	1925
Phoenix Biscuit Co.	Grosvenor & Southampton Sts. Abbotsford	1910
Phoenix Biscuit Co.	Grosvenor St. Abbotsford	1910
Phoenix Chemical Co.	280-282 Napier St. Fitzroy	1895
Pinkney & Holland	210 Alexandra Pde. East Clifton Hill	1930
Pitman shoe factory	37 Groom St. Clifton Hill	1900
Pitt, Joshua, tannery	Gadd St. Northcote	1900
Pizzey, A.E. boot factory	163 Noone St. Clifton Hill	1905
Pizzey, George & Son	110-12 Argyle St. & 131-5 Johnston St. Fitzroy	1920
Pizzey, George & Son	Argyle Place Fitzroy	1890
Porta, J. G. & W. bellows makers	155 George St. Fitzroy	1920
Porta, J. sawmills	61 Heidelburg Road Fairfield	1910
Preston & Co. distillery	Church St. Abbotsford near Yarra	1905
Prima Wear	120-30 Queens Pde. North Fitzroy	1930
Pullen & Co	142 Queens Pde. North Fitzroy	1895
Purina Foods,	628-32 Smith St. Clifton Hill	1920
Purina Grain Foods Pty Ltd	14-20 Best St. Nth Fitzroy	1930
Puttifoot & Bloom shoe factory	200 Noone St. Clifton Hill	1910
Ralph James Manchester	348 Victoria St. Brunswick	1930
Ramsden & Chapling Pty Ltd	2-6 Grant St. North Fitzroy	1930
Ramsden boot factory	33 Spensley St. Clifton Hill	1920
Randall, Thomas & Co.	143 Rose St. Fitzroy	1880
Rawleigh, T & Co	Dawson St. Brunswick	1910
Raymond, G.N.	3-5 Easy St. Collingwood	1940
Raymond, G.N. box factory	17-47 Easy St. Collingwood	1926
Raymond, G.N. last factory	6-34 Easy St. Collingwood	1890/1920
Rayon Distributors	61-3 Brunswick Rd. Brunswick	1930
Red Robin/Gaffney Int.	162 Lygon St. Brunswick East	1920
Reid, Robert clothing factory	2 Hoddle St and Ferguson St. Abbotsford	1890
Reidy, E.H. furniture factory	12-18 Otter St. Collingwood	1856/1915
Reilly J. Flour Mill	433 Brunswick Street Fitzroy	1869
Reilly J. Flour Mill	Church & Nunn Sts. Benalla	1872

Repetition Engraving Co.	142 Queens Pde. North Fitzroy	1920
Rhodes & Heron	6-10 St Georges Rd. Northcote	1925
Ritter, R. & Son	56-66 Fitzroy St. Fitzroy	1920
Roberts & Sons furniture factory	342-344 Young St. Fitzroy	1910
Robin's boot factory	111 Islington St. Collingwood	1925
Robinson boot factory	160 Argyle St. Fitzroy	1920
Roger's boot factory	280-282 Napier St. Fitzroy	1891
Rojo, C.F.	Napier St. Fitzroy	1930
Romer Knitwear	106 Victoria St. Fitzroy	1920
Rose's motor works	1-9 Beavers St. Northcote	1920
Roughton, J.T. & Son	3 Bedford St. Collingwood	1900
Rowe, W. textile eng	644 High St. Northcote	1930
Runting's glass bottle works	17-29 Brunswick Rd. Brunswick	1910
Sage's carriage works	2 Easy St. Collingwood	1880
Sampson ropeworks	64-72 Tinning St. & 7-9 Cassells St. Brunswick	1890/1908
Sands & McDougal paper mills	Old Highway Broadford	1890
Saunders, W malt extract works	18-22 Trennery Crs. Abbotsford	1922
Schofield wool scouring works	Oakover Rd. Preston	1895
Schofield, James, woolscourer	663 Victoria St. Abbotsford	1917
Schweppe's Cordial Factory	35-47 Lithgow St. Abbotsford	1880/1920
Scorse's Hopetoun Tannery	260-90 Alexandra Pde. East Clifton Hill	1900
Searl, Arthur hair works	62 Alexandra Pde. & Gold St. Clifton Hill	1880
Sheehan, Patrick motar engineer	184 Brunswick St. Brunswick	1925
Sherry shoe factory	171-3 Rosneath St. Clifton Hill	1920
Sidchrome box Factory	Marshall Pl. and 77 Spencely St. Clifton Hill	c1950
Simmons tobacco factory	Condell St. Fitzroy	1900
Skipper, A. J. & sons, boot factory	38-40 Reid St. North Fitzroy	1900
Sleeping Beauty Product	103-5 Evans St. Brunswick	1910
Smalley & Harkness boot factory	16 Islington St. Collingwood	1898/1910
Smith & Kenihan bacon works	Bastings St. Northcote	1880/1920
Smith & Sons, bacon works	95-105 Westgarth St. Fitzroy	1890-1910
Smith Kenihan & Co.	Bastings St. Northcote	1880/1920
Smith's Garage	High St. Chiltern	1900
Soho Shoe Company	3 Bedford St. Collingwood	1890
Solomon Industries	405 Fitzroy St. Fitzroy	1920
South Preston Tannery	60 High St. & 69 Plenty Rd. Preston	1900
Spanish Cellars	393 Barkley St. Brunswick	1950
Sparrow engineering works	121 Westgarth St. Fitzroy	1910
Spicer Bros. boot factory	62 Bell St. Fitzroy	1920
Spicer's Paper Mills	1-9 Moreland Rd. Coburg	1920-40
Spicer, A.M. & Co. boot factory	260-90 Alexandra Pde. East Clifton Hill	1930
Spicer, A.M. & Son boot factory	163 Noone St. Clifton Hill	1820
Spira, J.	253-7 Wellington St. Collingwood	1910
Spry Bros. boot factory	628-32 Smith St. Clifton Hill	1890&1910
Spry's boot factory	433 Brunswick Street Fitzroy	1880
St. Crispin Eng. Co.	cnr Napier & Chapel Sts. Fitzroy	1940
St. Crispin House	247-253 Johnston St. Abbotsford	1923
Staley & Staley/Holeproof	6 Merri St. Brunswick	1926
Standard Leather Pty Ltd.	60 High St. & 69 Plenty Rd. Preston Preston	c1950
Stanton and Co.	61 Islington St. Collingwood	1887
Star Cinema	66 Brunswick Rd. Brunswick	1920-23
Steel Co. of Australia	14 Frith St. & Howarth St. Brunswick	1930
Stenfield & Nodrum Tannery	60 High St. & 69 Plenty Rd. Preston Preston	1930
Stephens & Co. clothing factory	20 Grey Street & 19 Hodgson St. Brunswick	1895
Stewart Taylor & Co.	45 Hotham St. Abbotsford	c1930
Stickland & sons	433 Brunswick Street Fitzroy	1930
Stockport hat factory	176 Noone St. Clifton Hill	1880
Stray & sons blacksmiths	Old Highway, Broadford	1890
Sturtevant Mfg. Co	129-31 Greeves St. Fitzroy	c1950
Sunderland & Burbank,	5 Bedford St. inc. Collingwood	1895
Swan, Robert, Fitzroy Flour Mill	433 Brunswick Street Fitzroy	1875
Tascott shoe factory	160 Easy St. Collingwood	1920
Taylor, Henry aerated water factory	430 Rae St. North Fitzroy	1900

Textile mill	236 Lygon St. Brunswick East	1930
Textile mill	240 Lygon St. Brunswick East	1930
Thompson, Hugh, & Son P.L. tannery	Rokeby & Glasshouse Sts. Collingwood	1920
Thompson, R.W. Pty Ltd. tannery	260-90 Alexandra Pde. East Clifton Hill	1905
Tip Top Bakery	170 Edward St. Brunswick	1940
Transformer Manufacturing Co.	71 Argyle St. Fitzroy	c1940
Trescowthick's boot factory	24 Groom St. Clifton Hill	1902
Trescowthick's boot factory	316 Hoddle St. Abbotsford	1920
Trescowthick's boot factory	326 Hoddle St. Abbotsford	1910
Trescowthick, Charles boot factory	Groom & Rosneath Sts. NW Clifton Hill	c1910
Trescowthick, I. boot factory	59 Alexandra Pde.	c1925
True-Mould Tyres	205 Queens Pde. Clifton Hill	1930
Trueform Boot & Shoe Co.	43 Groom St. Clifton Hill	1900
Tweedside mills	61-69 Victoria Crescent Abbotsford	1919
Ulathorn, Hartridge & Co. Ltd.	247-253 Johnston St. Abbotsford	1930
Union Knitting Mills	37-43 Munro St. Coburg	1936
Unique Knitwear	42 Gadd St. Northcote	c1930
United Carpet Mills	Oakover Rd. Preston	c1950
United Felt Hats Ltd.	112 Trennery Crescent Abbotsford	1920
United Felt Hats Pty Ltd.	23 Mollison St. Abbotsford	1915
United Felt Hats Pty Ltd.	48-60 Nicholson St. Abbotsford	1930
United Hat Mills	26 Heidelburg Rd Fairfield	1930
United Shoe Machinery Co.	114-6 Moor St. Fitzroy	1910
United Woollen Mills	Oakover Rd. Preston	c1930
Universal Hosiery,	20 Grey Street & 19 Hodgson St. Brunswick	1935
Van Damme's Dairy	40 Scotchmer St. North Fitzroy	1930
Vauxhall distillery	Church St. Abbotsford near Yarra	1895
Veitch, D.C. American roll factory	379 St. Georges Rd. North Fitzroy	c1915
Veloura Fabrics	519 Sydney Rd. Coburg	1935
Venice Bakery	56-8 Eastment St. Northcote	1910
Vesta Knitting Mills	40 Rose St. Fitzroy	1930
Victoria Distillery	Northumberland St. Collingwood	1862
Victoria Tannery and boot factory	Rokeby & Glasshouse Sts. Collingwood	c1876
Victorian Ice Co.	Grosvenor & Southampton Sts. Abbotsford	1889-90
Vision Plate Manufacturing Co.	Condell St. Fitzroy	c1950
Wainwright & son boot factory	230 Alexandra Pde. East Clifton Hill	1920
Walker Joinery	Walker to Spensley Sts. Clifton Hill	c1935
Walters & Hunt shoe factory	3-5 Easy St. Collingwood	1930
Wangaratta Dairy	Hume Highway Wangaratta	1920
Wangaratta Woollen Mills	Textile Avenue Wangaratta	1920
Ward, H.S.K. preserving works	63 Cambridge St. & 44 Oxford St. Collingwood	1920
Watson & Paterson's bacon works	Dundas St & Plenty Rd. Preston	1862/1900
Welsh, John Pty Ltd.	12-20 Millar St. Brunswick East	1910/40
West Bourke Refrigeration & Ice Co.	95-105 Westgarth St. Fitzroy	1890-1910
Whybrow & Co. boot factory	218 Hoddle St. Abbotsford	1914
Whybrow's Boot Factory	1-15 Stafford St. Abbotsford	1890
Whybrow's Boot Factory	198-210 Hoddle St. Abbotsford	1920
Wilke, Fred broom factory	114 Bent St. Northcote	1910
William's Iron Works	7 Weston St. Brunswick	1910
Williams' Shoe Factory	202 Langridge St. Abbotsford	1909/1920
Wodonga Butter Factory	Lincoln Causeway Wodonga	1926
Wolf's Cordage Works	399-401 Albion St. Brunswick West	c1920
Wynn's boot factory	132-134 Leicester St. Fitzroy	1880
Yarra Falls	8-12 Trennery Crs. Abbotsford	1940
Yarra Falls	112 Trennery Crescent Abbotsford	1926
Yarra Falls Flour Mill Co.	off Trennery Crescent Abbotsford	1888
Yarra Falls spining mills	425 Johnston St. Abbotsford	1917
Yarra Falls weaving mills	80-110 Trennery Crs. Abbotsford	1910
Yates' boot factory	6-10 Page St. Clifton Hill	1884
Yorkshire Brewery	88 Wellington St. Collingwood	1876
Yorkshire Textile Mills	Inverness St. Brunswick	1919