All the sources of this thesis have been acknowledged and the thesis is my own composition.

G.P. WALSH.
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GFW
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PREFACE

The aim of this thesis is to describe and analyse the origins and development of manufacturing in Sydney from the foundation of the colony of New South Wales to 1850. There is a growing volume of literature on the early history of agriculture, land settlement, commerce, and the earliest staples, whaling and sealing; the almost complete neglect of manufacturing by historians and geographers alike provides sufficient justification for the choice of subject. The recent work of N.G. Butlin has shown that manufacturing was an important concomitant of urbanization in the second half of the nineteenth century. And while a study of the origins and development of manufacturing to 1850 is of intrinsic interest and value in itself, it will also serve to provide the background for more detailed studies in manufacturing and urbanization in the second half of the nineteenth century.

The choice of Sydney rests on the practical reason for choosing a manageable unit of study given the availability of source material and because Sydney's share of manufacturing was the dominant part

---

1 For example, Margaret Steven and D.R. Hainsworth on commerce, whaling, and sealing; and K.W. Robinson and B.H. Fletcher on land settlement and agriculture. The most recent of this work is in G.J. Abbott and N.B. Nairn (eds.), Economic Growth of Australia, 1788-1821 (Melbourne 1969).

of New South Wales factory manufacturing throughout the nineteenth century. In the first sixty years of settlement it was only in Sydney that manufacturing was sufficiently large and diverse in composition and relationships as to raise important enough problems of historical interpretation. Furthermore, a study of manufacturing in the oldest white settlement in Australia provides us with an interesting and important case-study of a city and continent undergoing the process of "industrial revolution".

The thesis is divided into two parts of about equal length. Part I consists of two chapters that describe the origins and development of manufacturing from 1788 to 1850 against a broad background of social, economic, and urban developments. Part II consists of four smaller chapters that examine certain aspects or problems arising out of the largely descriptive Part I, and a general conclusion.

Chapter I (Part I), covering the period 1788-1821, describes the origins and development of manufacturing in a penal settlement where the emphasis is on government activity and where the private sector is only of small significance. Manufacturing is discussed under the following general headings:

(i) industries associated with building and construction, e.g. brickmaking.

(ii) industries connected with the production of food and drink, e.g. flour milling, brewing.

(iii) textiles and clothing.

(iv) the metal trades.
(v) miscellaneous, i.e. those manufactures not included in the four main groups; e.g. boat-building, tanning, and other products from local raw materials.

Under the same general headings as Chapter I, Chapter 2 describes developments for the period 1822-1850, where the government preponderance in manufacturing gives way to the rapid growth of a private manufacturing sector.

Having broadly described the development of manufacturing, Part II looks in detail at (i) the role of the government, (ii) the manufacturers, (iii) factories, labour, and the organization of labour, and (iv) the geography of manufacturing of Sydney.

Chapter 3 (Part II) on the role of the government looks at the main ways the government affected manufacturing activity. In the early years, because of the colony’s penal nature, the government through its commissariat dominated the economic life of the colony. The government was the principal source of capital, employer of labour, manufacturer and consumer. It was the pioneer in most industries; it encouraged others by offering incentives, premiums or rewards to both free settlers and convicts who developed an approved branch of manufacturing or made a "break through" in technology for the infant colony; it restrained and even prohibited others, e.g. boat-building, and distilling; it regulated some, such as baking, and affected the location of many others by legislating
against nuisance.

Chapter 4 on the manufacturers attempts to answer the following questions. Who were they? Were they, as Peter Cunningham suggests, mainly emancipists?\(^1\) Where did they derive their capital from? Were they trained and skilled in their respective callings? Did they possess any social or political significance as a group?

Chapter 5 examines the size and organization of the "manufactories" or factories, the standard of living of the factory workers, and early attempts at employee organization. Employment statistics are unfortunately lacking, but it is clear that a small factory system was emerging in the 'thirties and 'forties, and that this was paralleled by the organization of labour into trade societies or trade unions.

Chapter 6 examines the location pattern, or spatial distribution, of Sydney's early industrial establishments. The physical, economic, and legislative factors that determine the location of factories and the industrial zone, that essential component of the nineteenth century "Western" city, are noted. Sydney is also considered in the wider context of New South Wales, where new and growing inland towns, often long distances from Sydney, developed their own industries based on local raw materials.

\(^1\)Peter Cunningham, *Two Years in New South Wales*, 3rd ed. (London 1828), vol.2, p.137.
The chapter concludes with a very brief description of Sydney and its functions on the eve of the gold-rushes.

The conclusion, chapter 7, sums up the general picture to 1850, looks at manufacturing in the wider context of the other Australian colonies and economic development in general, and refers to the effects of the gold discoveries on manufacturing.

The most important sources used in this study are governors' despatches, in-letters to the governor and colonial-secretary, other government archives, parliamentary papers, newspapers, and contemporary books and pamphlets. Governors' despatches to England published in the Historical Records of New South Wales (7 vols), and in the Historical Records of Australia, Series I (26 vols), contain a wealth of information on all aspects of the colony's growth, problems, policies, and administration; they are especially invaluable for the first thirty years. In-letters to the Colonial-Secretary often contain information of a more local and detailed nature. Much of this correspondence is in the form of memorials or petitions to the governor and colonial-secretary, which solicited land grants, asked favours, sought protection or assistance for the establishment of some manufacturing venture; they also often contain useful information on the memorialist's past business ventures. The detailed unpublished evidence presented to Royal Commissioner Bigge regarding the state of the Colony in 1819-1821, is a valuable source for
both government and private manufacturing ventures. This material is sometimes in question and answer form, but is often in the form of a written submission. The police magistrates' returns, which are in reality the working papers for the compilation of the Blue Books, 1825-56, is the other most important archival source. Parliamentary papers in the form of Votes & Proceedings of the Legislative Council are invaluable for the wide range of information. In addition to numerous petitions and information papers, they contain the evidence given before the various select committees on matters connected with the state of the colony, labour, nuisance, and other industrial problems. The reports of some select committees and their minutes of evidence in the Votes & Proceedings of the Legislative Assembly in the 'fifties and 'sixties often contain information relevant to an earlier period. The censuses of 1828, 1841, 1846 and 1851 are of some use in the absence of a proper industrial employment series, but changes in detail and classifications make the task of comparison impossible. Newspapers, such as the Sydney Gazette 1803-42, the Australian 1824-1848, the Sydney Monitor 1826-1841, and the Sydney Morning Herald 1831+ are a very important source. Advertisements, news items and business cards printed in them usually give details of the location of a manufactory and the nature of its products. Moreover, auction sale notices of mills and manufactories often give precise details of size and degree of adaptability to other manufacturers. All too often advertisements are the only record of a factory's continuity of operation. All issues of the colony's first (xiv)
newspaper, the *Sydney Gazette*, have been examined for the above type of information, as the indexes that do exist for some of the early newspapers are useless for any degree of detail.

Certain sources may be regarded as minor ones. Although sometimes containing important incidental evidence, contemporary books and the few private papers of manufacturers that are extant are in this category. With regard to secondary sources, the few existing local histories of the Sydney districts are invariably badly written and usually contain many unsubstantial facts and judgments. On the other hand, many papers published in the *Journal and Proceedings of the Royal Australian Historical Society* from 1901 onwards are of slightly better historical scholarship; but usually these are at best asymptotic to the history of industrial development. There is hardly any secondary literature directly concerned with the history of manufacturing in Sydney; as a result, this study is almost written entirely from primary sources.
Chapter I

ORIGINS AND DEVELOPMENT, 1788-1821

Sydney was founded as a penal settlement on 26 January 1788. Captain Arthur Phillip with his eleven ships had arrived in Botany Bay some days earlier, but finding its shores generally unsuitable for a settlement decided to examine Port Jackson a few miles to the north. Here, on the southern shore of one of the finest natural harbours in the world, at the head of a small cove "near the run of fresh water", a thousand officers, marines, convicts, women and children disembarked, encamped, and began the painful struggle to subsist where previously only stone-age aboriginals lived. The new settlers had abundant supplies of fresh water, fish, game, timber, clay, and building-stone and these together with certain supplies and raw materials brought from England constituted the basic resources of the infant economy.

The First Fleet brought civilization and startling innovations to the ancient continent, which for thousands of years had been by-passed by the Neolithic revolution as well as by white colonizers. If, as Manning Clark claims, this microcosm of European society brought with it the whole legacy of Western Civilization, it also brought with it the much refined agricultural and industrial techniques and practices of

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1 C.M.H. Clark, A History of Australia (Melbourne 1962), vol.I. The word "civilization" is used in the same sense as Professor Clark uses it.
eighteenth century Europe, and a vastly different type of material
culture from that which the aboriginals possessed. Furthermore, being
settled in the last quarter of the eighteenth century by Britain, the
sole possessor of the new emerging industrial techniques, the colony was
heir to the parent country's innovations in manufacturing technique
and organization. A study of manufacturing in Sydney to the mid-
nineteenth century is in essence the study of a town undergoing the
initial phases of the industrial revolution.

The aboriginals had manufactured weapons, boats, and primitive
shelters or dwellings, and the white settlers' first manufactures were
also closely related to the basic necessities of life. The first major
concern of Governor Phillip and the unwilling work-force under his control
was the provision of sufficient shelter and food; consequently the first
manufacturing ventures were linked with attempts to satisfy these needs.
Timber, stone, and clay were worked up into materials for the
construction of buildings, and grain was milled into flour. Manufacturing,
even of this simple type, was an essential part of the early colonial
economy, and so many trades and industries had their origins in the
foundation years of the colony.

Two factors did much to determine the particular character and
development of the colony's early manufactures. The first arose from the
colony's geographical position. Isolation from Britain and from the
main trade routes gave a hard touch of reality to the British government's
policy of requiring the colony to become self-sufficient as soon as
possible. This isolation, coupled with the parsimony of the home government in sending out the necessary supplies, gave a large degree of natural, as well as political protection to the colony's manufactures. But the barriers of isolation and distance, while encouraging and stimulating certain manufactures, placed severe limitations on the nature and extent of development.

The second formative circumstance arose from the fact that Sydney was a penal colony under the control of an autocratic governor who was responsible to the British government. The government through its commissariat dominated the economic life of the colony, because until about 1830 it was the principal source of capital, employer of labour, consumer and manufacturer. The free domestic market was too small and the number of free settlers was too few to permit the rapid growth of a private manufacturing sector for many years. Furthermore, the fact that Sydney was a penal colony and that settlement was concentrated rather than dispersed meant that the government could easily direct and control the occupations of the captive community. Sydney, unlike the New England colonies of North America, thus exhibited an abnormal degree of the division of labour from the beginning. The government simply told-off certain convicts to be brickmakers, sawyers, millers, ironworkers, or whatever the need might be.

These two circumstances taken together - the colony's isolation and

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1 The first free settlers apart from the military, did not reach New South Wales until 1793.
its penal nature - meant that manufacturing in its earliest phase, apart from the working up of certain local raw materials, could never hope to be much more than directed towards the import replacement of basic necessities. Even when the population increased and free settlers and emancipists set up larger establishments, the possibility of an external market was ruled out because of the monopoly of the East India Company until 1813 when the monopoly for all but the China trade was abolished. For about the first thirty years the manufacturing that did emerge remained largely at the mercy of commissariat demand which, in turn, was determined externally from England.

During the period 1788-1850 the growth and progress of manufacturing was influenced not only by technical innovations and demographic developments, but also by changes in the prosperity of the colony as a whole. In the foundation years 1788-1809 the economic development of the colony was small, haphazard, and impeded by faction struggles between the officer-trader monopolists, and between the military and the governor. Although these years saw the genesis of agriculture, commerce and manufacturing, the last two, according to one authority, were in a state of "utter inferiority and depression". Governor Bligh, who was deposed by the military in January 1808, had written that manufactures were "extremely trifling". On the arrival of Governor Macquarie, the last of the autocratic governors, in December 1809, some stability was imparted.

\(^2\) Governor Bligh to Right Hon. W. Windham, 31 October 1807, HRA, 6, p.157.
to the colony. Particularly striking during the Macquarie period, 1810-1821, was the growth and development that took place in the town itself. Roads, wharves and buildings were provided as the gaol-town was transformed into a civil community. Macquarie's large and costly programme of public works thus gave impetus to local manufactures associated with building and construction.

Contemporary writers have recorded the nature and growth experienced by the economy in general and manufacturing in particular, referring to both external and internal factors affecting the growth of manufacturing. Alexander Machonochie noted that

In 1810, the firmer rule of the present Governor, General Macquarie, had already begun to produce some effect, but its operation, together with that of the greater facility subsequently afforded to importation from Europe, has been rather injurious perhaps to the manufactures, which are still extremely coarse, and consist exclusively of some flannel and linen cloth...together with the preparation of leather, pottery and salt for the domestic market, of kangaroo skins for exportation, and of the coarse machinery, as wind and watermills, etc., used in the agricultural labours of the settlers.¹

Although disapproving of the progress made in manufacturing and endorsing Adam Smith's ideas on the proper development of colonies, Wentworth gave a more glowing account of manufacturing and was of the opinion that the progress made by the colony in manufacturing had perhaps "never been equalled by any community of such recent origin".² In 1819 he wrote

¹Machonochie, loc.cit.
²W.C. Wentworth, op.cit., p.111.
Sydney already contains extensive manufactories of coarse woollen cloths, hats, earthenware and pipes, salt, candles, and soap. There are also extensive breweries, and tanneries, wheel and plough-wrights, gig-makers, blacksmiths, nail-makers, cabinet-makers, and indeed all sorts of mechanics and artificers that could be required in an infant society, where objects of utility are naturally in greater demand than articles of luxury.*

Wentworth attributed much of this progress to the barter type of economy that prevailed. The colonial manufacturer was often paid in kind for his commodity with the raw material required for its production; for example, wool, which was used in the manufacture of cloth and hats. This procedure saved the manufacturer the trouble of getting his materials elsewhere. Moreover, other payments in kind, like grain and meat, could be distributed among the workmen at the market prices of the day thus freeing the manufacturer from the necessity of having to pay his workmen the full value of their labour in money. 2 As shown below in this chapter there was a considerable amount of manufacturing based on local raw materials. But, as Machonochie observed, the development of local manufacturing in general was hindered by the facility and relative cheapness of English imports.

There were crises in the infant economy before 1820; these were usually food shortages due to natural disasters like flood and drought. But the economy was too small and too dependent to allow the development of an autonomous business cycle. Nevertheless, it appears that during the minor business recession after 1814 experimentation directed towards

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1 Ibid., p.111.
2 Ibid., p.239.
the replacement of imports was stimulated. The chief manufactures affected in this way were woollen clothing, hats, pottery, beer, and certain metal products. However, the evidence is not sufficient to assess whether manufacturing as a whole was stimulated or retarded.

In an isolated pioneering community endeavouring to establish a foothold on a vast continent, it was inevitable that the first manufactures would be associated with the building industry and with agriculture. In this chapter, then, manufacturing will be discussed under the following general headings

(i) industries associated with building and construction;
(ii) industries connected with the production of food and drink;
(iii) textiles and clothing; and
(iv) the metal trades;
(v) miscellaneous: those manufactures not included in the four main groups.

(i) **Industries associated with building and construction**

The need for shelter\(^1\) for the thousand first settlers was satisfied long before the colony was placed on a firm agricultural footing; from the outset timber-getting and brickmaking were important industries. (Fig. 1)

\(^1\)For a detailed account of the type of dwelling erected in the early days of settlement see M. Herman, *The Early Australian Architects and their Work* (Sydney 1954).
SYDNEY DISTRICT
LOCATION OF INDUSTRY
1788-1821

Figure 1.
Even before the settlement had been made at Sydney Cove a saw-pit had been constructed at Point Sutherland on the southern side of Botany Bay while Captain Phillip was exploring Port Jackson. Before long numerous saw-pits were constructed in the thickly wooded arms and coves of Port Jackson and Broken Bay to provide timber for the building industry. By 1800 the industry employed about one-quarter of the convict workforce. Bricks and tiles were manufactured at several localities in Sydney and at the government outpost at Parramatta. The government brickworks on the slopes of Brickfield Hill was the largest. Here in the first year of settlement thousands of light-brown bricks were burnt for government house and other public buildings. Ten thousand bricks per month were made in 1788, but in the following year the monthly production was raised to 30,000. The natural resources of timber, stone, and clay were thus utilized early to good effect; but the lack of natural deposits of lime for mortar retarded the erection of permanent storied buildings and also increased the cost of building.

1 Journal of Daniel Southwell, 24 January 1788 in HRNSW, 2, p.662. This was the first industrial establishment in Australia.
2 HRNSW, 4, pp.186-7.
This was so because builders were obliged to increase the thickness of the walls in order to carry them to any great height.\(^1\) The deficiency in limestone, however, was for many years partly overcome by gathering and burning shells from the numerous aboriginal midden heaps that lined the inlets and bays.\(^2\)

During the period of Macquarie's governorship, 1809-1821, the building industry flourished. Governor Macquarie lavished great care on the growing town; by 1821 it contained over one thousand buildings, three hundred of which were in brick or stone.\(^3\) By this date the town contained thirty-one public buildings, many of which, including the hospital and the various barracks, were erected as a result of Macquarie's building programme.

The timber for a wide variety of building uses\(^4\) was supplied from the government establishments at Lane Cove, Pennant Hills, Longbottom (Hen and Chicken Bay) and Newcastle. Saw-pits were established further afield as all the valuable timber within a radius of eight miles had been utilised in the first twenty years of settlement.\(^5\) The government

\(^1\)HRA, 1, p.194.  
\(^2\)HRNSW, 3, p.176.  
\(^3\)Twenty-one per cent were of brick, six per cent of stone, the great percentage of the remainder of weatherboard. Bigge, Appendix, BT, p.5654.  
\(^4\)No fewer than twenty different kinds of timber were used for building, agricultural or naval purposes; see "List of the prevailing Timber Trees of New South Wales", Bigge, Appendix, 25, pp.5465-9.  
\(^5\)Bigge, Evidence, BT, 1, p.85.
saw-pits were at first located up the Lane Cove River in the vicinity of Blue Gum and Stringybark Creeks, about nine miles by water from Sydney; but by 1810 the timber here was becoming scarce,¹ so other sites were sought. By 1819 the main government saw-pits were at Pennant Hills and Longbottom, northwest and west of the town. Blue and black-buttoed gum, stringybark and ironbark were plentiful at Pennant Hills. Over 100 convicts were employed here, felling timber, splitting shingles and scantling for the building industry as well as burning charcoal for the foundries.² In 1820 there were twelve sawyer's gangs cutting 5000 shingles each per week, and one gang employed in cutting posts and rails. The timber was carted by bullock-waggon about five miles to a point on the Parramatta River (Ermington) from whence it was transported by water to Sydney.³ In 1821 twelve boats were constantly employed on the Parramatta River conveying timber from Pennant Hills and Longbottom. (Fig. 1) Victualling boats for these outposts and those returning from Parramatta brought timber and lime as backloading.⁴ The building trades of Sydney were supplied by coastal as well as riverine shipping. Cedar, lime, and coals came from Newcastle as backloading in provision boats and were bartered for paints, oil

¹Ibid., p.13; L. Macquarie, Memoranda, 1808-14, p.24 [A.772].
²Evidence of Major G. Druitt to Commissioner Bigge, 27 October 1819, BT, 1, pp.82-5.
³Evidence of Patrick Kelly to Commissioner Bigge, 3 September 1820, BT, 11, pp.4296-7.
and canvas at the value of 6d. per super foot of cedar and from £2 to £2.10s. per ton for coal.¹ Huon pine from Van Diemen's Land was also exchanged for cedar from Newcastle. Lime was produced at the rate of 2000 bushels per week at Bennelong Point from shells collected and sent by boat from Iron Cove.² In contrast to these materials, however, clay and sandstone for the increasing number of brick and stone buildings in the colony's first building boom were obtained locally. The government brick-kilns at Brickfield Hill could by then burn as many as 100,000 bricks at a time.³ Sandstone for the public buildings was quarried from the sandstone bluff on the east side of Kent Street north in Sydney, between the present Argyle and Grosvenor Streets.

(ii) **Industries connection with food and drink**

Flour milling was the most important industry during this period and for many years afterwards. It was the one that occupied the most time and effort. The struggles of the early wheat farmers against a difficult environment loom large in the economic history of the foundation years. Unskilled farmers, poor and exhausted soils, drought, caterpillar plagues, crop diseases, and disastrous floods severely handicapped farming and delayed progress towards the goal of agricultural self-sufficiency. But the provision of adequate grain

¹Bigge, Evidence, BT, 1, p.56.
²Ibid., p.174.
³Ibid., p.15.
supplies, difficult as it proved to be, was one thing; to convert the grain into flour was another. This conversion involved a mechanical process, even if it was only crushing it in a mortar. Many difficulties had to be overcome and many improvements effected before milling operations became efficient.

In the first thirty years the grinding or milling of grain progressed from steel hand-mills to larger man-powered mills, and finally to those powered by animals, wind, water, and steam. Forty small steel hand-mills were brought out in the First Fleet, but no provision had been made for their maintenance.\(^1\) As these mills were case-hardened they had to be frequently fluked and re-sharpened: an operation which was a trade in itself. Their manufacture and repair was later to become a regular business, and they continued to be used well into the 'fifties. However, they were quite unsuitable for a struggling community which lacked skilled tradesmen. Besides these hand-mills and querns, wooden mortars with a lever and pestle were used at Parramatta to grind corn. Collins says that "these pounded it much finer than it could be ground by the hand-mills; but it was effected with great labour".\(^2\) Indeed all hand devices were laborious and inefficient for producing large quantities of flour and as early as November 1791 Governor Phillip noted that "a windmill had now become absolutely necessary".\(^3\)

\(^1\)N. Seife, *JRAHS*, 1 (1902), p.96.
\(^2\)D. Collins, *op.cit.*, 1, p.211.
\(^3\)Governor Phillip to Under-Secretary Nepean, 18 November, 1791, *HRNSW*, 1, pt 2, p.557.
Before the first windmill was built in Sydney several experiments were made with man-powered mills, which were relatively easy to construct and made use of convict labour. In 1793 a "walking mill", powered by two men at Parramatta, ground from two to four bushels per hour, but it was "found to be unequal to the consumption of the settlements", and frequently broke down.\(^1\) In the following year further experiments were made with man-powered mills and the government held a competition in Sydney to determine the most efficient principle. An emancipist, John Baughan (1754?-1797), and a convict, James Wilkinson, each constructed mills on different principles that were tested in March 1794. Wilkinson's, larger than one he had previously built at Parramatta, was powered by six convicts in a squirrel cage; but Baughan's device, in which six men walked in a circle like sailors round a capstan, ground a bushel of wheat in seventeen minutes and was judged to be the more efficient.\(^2\) There were two such man-powered mills in operation in Sydney by July 1794, but they were shortlived.\(^3\) These and other attempts at mill building were in the long run unsuccessful, mainly because of the lack of skilled millwrights and because of the unseasoned quality of the local timber with which they were constructed. Governor Hunter brought from England the parts for a large windmill in September 1795 and from then all exertions were devoted to the

\(^1\) Collins, *op.cit.*, 1, pp.316, 326.
\(^2\) Ibid., p.359.
\(^3\) Ibid., 1, p.378. Treadmills were later used in gaols, but they were mainly for disciplinary purposes and not to satisfy any urgent need.
construction of windmills.\(^1\)

The windy ridges fifty to one hundred feet above sea level on either side of the valley of the Tank Stream offered excellent sites for the location of windmills. (Plates I & II) It was here, on the western or York Street, ridge, that the first windmill in the colony was completed and successfully operated in 1797. This mill with half sails and one pair of stones ground at the rate of six bushels per hour.\(^2\) After its completion others followed rapidly at both Sydney and Parramatta. A second mill on the western ridge was completed in 1802 and was later known as the Military Windmill; a third one, a wooden structure, was completed about 1805.\(^3\) (Fig. 2)

While the government was building mills on the western ridge private millers were doing the same on the eastern, or Macquarie Street, ridge. The first windmill here was probably also erected in

\(^1\)\(HRNSW, 2, pp.215-17.\)
\(^2\)\(HRNSW, 3, p.213.\)
\(^3\)The first windmill, which was in operation from 1797 to 1806, was erected on the site now occupied by the observatory. The second mill on the York Street ridge was completed in 1802. This was a 36 foot stone tower built to 'last for two hundred years' (see illustrations in Australian Almanack and Sydney Directory for 1834), and stood on a hill about the site where Grosvenor Street now intersects with York Street. This site was about twenty feet higher than it is at present. The site of the third western windmill, which had a wooden tower, was Flagstaff Hill, now Observatory Park, a little north of the present wall of Fort Street School grounds. All these mills are shown on John Eyre's engraving, Sydney from the East Side of Sydney Cove, 1810. See N. Selfe, JRAHS, 1, (1902), pp.99-100, and C.H. Bertie, Stories of Old Sydney (Sydney n.d.), pp.34-6.
PLATE I - SYDNEY IN 1802
A View of the town looking west to The Rocks.
The windmill shown is the one erected in 1797; to the right of the tower on the left is a windmill in construction. Below the windmill (centre) are the ship-building yards.
(From an original oil painting by the convict artist Thomas Whatling, in the Mitchell Library.)

PLATE II - SYDNEY c.1800
A view of the town towards the east.
The first windmill erected on the Macquarie Street ridge is seen behind the Governor's residence. Behind the government wharf (centre) are the public stores and manufactory; the low building to the right of the wharf is the government forge.
(From an engraving by William Blake of an unsigned oil painting in the Dixon Library, Sydney.)
1797. 1 John Palmer (1760-1833), the commissary, leased this mill and began milling and baking operations here in 1802; shortly afterwards he erected another mill a little further south. 2 In 1805, Nathaniel Lucas (1764-1818), the emancipist builder, erected the first post-mill which ground at the rate of six bushels per hour. 3 (Fig. 2) John Macarthur (1767-1834) of wool industry fame, had a post-mill erected on his Pyrmont estate in 1809, which was managed by the merchant-trader Garnham Blaxcell (1778-1817). 4 By the end of 1809 seven windmills, six of which were still working, dominated the low skyline of Sydney Town. Although flour milling was in general located at the point of consumption rather than production, mills also began to appear in the interior at this time; the main growing districts of Parramatta and the Hawkesbury had one windmill each by 1810.

1 The mill was known as Boston's Mill and was situated just south of the site of the Conservatorium of Music. It is shown on an original painting, Sydney Cove, 1797, reproduced in HRNSW, 6, appendices, after p.820, and also on Grimes' Map of Sydney, 1800. It was dismantled by order of Governor Macquarie in 1814. HRA, 8, p.341.

2 This was situated near Governor Phillip's fountain in the Botanic Gardens. The history of John Palmer's lease in the Governor's Domain is related in detail in the Report on the claim of Fairlie & Co. against the Government of New South Wales', enclosure in Gipps to Normanby, 23 December 1839, in HRA, 20, pp.441-6.

3 SG, 17 March 1805. Lucas' mill occupied a site in front of the Public Library of N.S.W. It was shortly afterwards leased to Henry Kable (1763-1846) an emancipist trader and businessman who pioneered shipbuilding and dabbled in manufacturing. It was later moved to the Darlinghurst ridge.

4 This mill stood on the site now occupied by St Bartholomew's Church, Pyrmont. N. Selfe, JRAHS, 1 (1902), p.103.
SYDNEY
LOCATION OF
EARLY WINDMILLS
BASED ON MEEHAN'S PLAN, 1807

Figure 2.
After 1809 the number of mills increased both in the town and in the interior and there was an increasing tendency to mill grain in the interior rather than at the point of consumption. However, despite this tendency, Sydney in 1821, with eight windmills, two water mills and a steam flour mill operating in or near the town was still the milling centre of the colony.¹ Grain could be transported to Sydney fairly cheaply by water from the main agricultural districts around Parramatta and Windsor. Because roads were few, and those that existed were merely bridle-paths resembling the worst and most notorious of contemporary English roads, the facility and cheapness of transport by boat from Parramatta and the Hawkesbury greatly outweighed that of the ox-waggon. As C.J. King has pointed out, despite the fact that in 1794 the Hawkesbury was linked by road to Parramatta it was quicker and cheaper for the next twenty-five years to bring grain from the Hawkesbury 120 odd miles down the river and coast than to transport it overland.² Three windmills had been erected at Miller's Point by 1813³ and like Blaxcell's mill at Pyrmont were admirably sited to receive grain and despatch flour by water.⁴ Thomas West erected a watermill near Sydney in

¹ Thomas Clarkson (c.1758-1824) built a mill on the Surry Hills near the South Head Road in 1821. SG, 14 April 1821.
² C.J. King, The First Fifty Years of Agriculture in New South Wales (Sydney 1950), p.525.
³ SG, 28 November 1811; 20 March, 17 July 1813.
⁴ On the advantages of Miller's Point see J.W. Penny to F. Drennan, 27 July 1819, CSIL, Bundle 13, vol.23, p.266 [4/1743].
1812 and in the following year a more efficient, reliable and adaptable form of power was introduced to Australia when John Dickson, an engineer and free settler, brought out from England an engine that he had used in his Southwark manufactory.

Dickson's the first steam engine in the colony, was erected at Cockle Bay (Darling Harbour), near the present Goulburn and Dixon Streets, and commenced work in 1815. (Fig. 3) The site "commanding a water conveyance of grain, timber and fire-wood" was a most suitable one; indeed, the only newspaper of the day observed that "Mr Dickson made choice of perhaps the only site in the Colony that could have promised a successful issue to his undertaking". The mill had wharfage facilities on Darling Harbour and a good supply of fresh water from a reservoir on a small stream in the Haymarket Valley. The plant was also intended to power saw and tan bark mills, but in its early years appears to have been solely concerned with milling flour for the government.

Though the industrial revolution had come to Australia in 1815, other means of power were for some years more important than steam. After the erection of the first water mill in Sydney in 1812, groups and partnerships with the necessary capital looked towards the Waterloo-Botany area to the south of the town where two freshwater streams,

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1SG, 25 January 1812. West's mill ground at the rate of 4½ bushels an hour. A water mill had been erected many years earlier at Parramatta.
2SG, 16 October 1813.
3SG, 17 June 1815.
4HRA, 8, p.159.
SLAUGHTER HOUSE

Millers Point

Sydney Cove

LIME-KILNS

DOCKYARD

Pyrmont

LUMBER YARD

Cockle Bay

SLAUGHTER HOUSE

TANNERY

STEAM ENGINE

THE BRICKFIELDS

SYDNEY LOCATION OF INDUSTRY 1821

Figure 3.
Shea's Creek and the Lachlan Swamps, drained into Botany Bay. (Fig. 1) Both these streams possessed a fair flow of water in good seasons and with the greater capital provided by partnership ventures presented suitable sites for water mills. The Waterloo Mills on Shea's Creek and the Lachlan Mills on the swamp of the same name were opened in 1820. They were built as the joint concern of William Hutchinson (1772-1846), Daniel Cooper (1785-1853), George Williams and William Leverton, and were opened in 1820. Both mills were run as a joint venture and were usually called "The Lachlan and Waterloo Mills". In 1821 the partners also included the emancipist Samuel Terry (1776?-1838), the wealthiest person in the colony and T.W.M. Winder (1789?-1853), both of whom had accumulated capital in commercial ventures. Indicative of the uncertainties in specializing in one venture only, the company extended its activities into general merchandising and entered the field of banking with the issue of its own notes in 1822. In 1820 T.W.M. Winder also obtained a grant of 400 acres and permission to erect another mill below the Lachlan Mill on the same conditions which the Lachlan Estate was held: that a water mill of 12 h.p. would be erected within five years.

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1 SG, 30 September 1820.
2 SG, 7 April 1821.
The new mills erected away from the town and in the immediate interior tended to be either horse or water-powered. New water mills were erected at Parramatta about 1811,\(^1\) on properties at Kurryjong about 1818,\(^2\) and below Wiseman's Ferry about 1819-20.\(^3\) John Macarthur also had a water mill that ground for the public near Parramatta in 1819.\(^4\) Howell's mill, also at Parramatta, was moved east from its original site on the government dam to the south side of the river in 1821.\(^5\) Only two new windmills were built in the interior between 1810 and 1821: one at Liverpool in 1818\(^6\) and the other on Blaxland's Newington Estate in the following year.\(^7\)

It had been realised early that flour milling had to be established on an efficient basis if the strenuous efforts in farm and field were to succeed. But as late as 1820 grain growers regularly had one-quarter of the annual harvest destroyed by vermin or weevil before it could be milled.\(^8\)

\(^1\) L. Macquarie, Memoranda, 1808-14, p.34 [A772].
\(^2\) CSIL, Bundle 12, vol.20, p.209 [4/1740].
\(^3\) Memorial of B. and J. Singleton, 16 September 1820 CSL (Land), 1820-26 [4/1845].
\(^4\) HRA, 10, p.166.
\(^5\) Memorial of G. Howell, 8 January 1822, CSL (Land) [2/2074, H4].
\(^6\) SG, 29 August 1818.
\(^7\) SG, 12 June 1819.
skilled mechanics and the need to import almost all the necessary machinery for the various types of mill, but they had been partly overcome by 1804 when both labour and cost were being saved. If, as the Sydney Gazette said in that year, it could be guaranteed that the grain could be ground quickly, the grain would be considerably less exposed to devastation from the weevil; consequently the expense of carriage would be reduced nearly one-fourth, grain scarcities would become less frequent, and the settlers' stock would benefit by the bran so produced.¹ In short, the gains of the successful establishment of windmills are shown by the facts that before 1797 producers were obliged to pay in kind almost one-half of their grain to have the other half ground,² but by 1804 they paid only about a quarter.³

By 1821 flour milling was becoming established on a more efficient basis. Whereas hand-mills ground about half a bushel of wheat in one hour,⁴ and horse mills were capable of grinding three to four bushels in the same time, the new water mills and the steam mill ground at a faster rate. The Waterloo Mills ground 1600 bushels in one week in 1821,⁵ and Dickson's steam mill with one pair of stones working ground on an average

¹SG, 15 January 1804.
²HRNSW, 3, p.213.
³SG, 15 January 1804.
⁴SG, 22 July 1822.
⁵SG, 25 August 1821.
Moreover, the steam mill produced a much finer product with less waste: John Dickson contracted with the government in 1821 to deliver 42½ lbs of flour and 12 lbs of bran out of every bushel (56 lbs) of wheat. But milling costs were high. Throughout the Macquarie period millers ground at an average rate of Is.3d. per bushel if the wheat was delivered to the mill and the flour carted away, while they ground at 3d. extra per bushel if the miller provided the cartage. However, tenders for the apparently lucrative business of grinding wheat for the government reached as low as 6d. per bushel on occasion.²

Many flour millers operated bakeries in conjunction with their mills. A bakehouse was attached to the Military Windmill, and in 1821 the whole establishment, mill and baker, employed eight persons.³ Baking was one of the first industries to come under government regulation,⁴ and in 1821 there were 52 licensed bakers in Sydney, including eight in Pitt Street and six each in George, Clarence, Cambridge and Kent Streets.⁵

For beverages the colony depended mainly on imported tea, spirits and beer. Nevertheless the local brewing and distilling industries had an early inception. The government directly encouraged the brewing

1SG, 3 June 1815.
2See the correspondence relating to the price war for government tenders. Bigge, Appendix, BT, 27, pp.6370-96.
3Bigge, Evidence, BT, 11, p.4351.
4See below, Chapter 3, for the reasons for government regulation of the bakery industry.
5Bigge, Appendix, BT, 12, pp.277-8.
industry for two reasons: first, brewing was expected to reduce the consumption of "the ardent spirits"\(^1\) which was having a deleterious effect on the workforce; and secondly, because it would stimulate agriculture by promoting the growing of barley which would in turn improve crop rotations.

Beer was manufactured privately from the early 1790's onward. An emancipist, James Squire (1755?-1822), of Sydney and later of Kissing Point (Ryde) appears to have been the first to brew beer in the colony. He stated in evidence to Commissioner Bigge in December 1820 that:

I have been in the Colony from its earliest establishment and for 30 years I have been a brewer. At first I lived in Sydney, and brewed beer in small quantities. I sold it then for 4d. per quart and made it from some hops that I got from the Daedalus arrived in 1793. I also brewed for General [sic] Grose and Colonel Paterson [1793-5] for their own consumption from English Malt. I have been established at Kissing Point as a Brewer for 28 Years, and have brewed from Indian Corn and Colonial Barley.\(^2\)

In 1796 John Boston established a small brewery in Sydney that brewed from "Indian Corn properly malted, and bittered". Beer from this brewing sold at 1s.6d. per bottle.\(^3\) However, at this time and for many years after, beer was not in general use as a beverage because of the lack of proper brewing equipment, the shortage of grain and hops and because of the predilection of the population to spirits. It was not until

\(^1\)Lord Hobart to Governor King, 29 August 1802, HRNSW, 4, p.824.
\(^2\)Evidence of James Squire to Commissioner Bigge, 29 December 1820, BT, 9, p.3931.
\(^3\)D. Collins, op.cit., 1, p.499.
1804 that the colony was able to raise a surplus of grain for which there was no market\(^1\) and in that year no fewer than three breweries commenced operation: one in Chapel Row (Castlereagh Street)\(^2\) Sydney, Squire's at Kissing Point,\(^3\) and the government brewery at Parramatta.\(^4\) The last mentioned employed six people and had a capacity of 6000 gallons per week, but it was never in full production. Only 5000 gallons were brewed in 1804; and in the first six months of the following year about 6000 gallons were brewed - that is, an average of about 230 gallons per week.\(^5\) Half the output of beer was used by the government for part payment of wages and other purposes, while the remainder was sold to publicans and settlers. Sydney was the main market where over half the beer was sold.\(^6\) Unexpected difficulties in supervision and management, together with the scarcity of barley for malting, compelled the government to discontinue brewing. The brewery was then leased to the former manager, Thomas Rushton, in 1806\(^7\) and after this date it appears to have functioned only intermittently.

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\(^1\) W.C. Wentworth, *A Statistical, Historical, and Political Description of the Colony of New South Wales* (London 1819), pp.177-8.

\(^2\) SG, 23 December 1804. This brewery, "Larken's Colonial Brewery", was shortlived.

\(^3\) SG, 18 November, 13 December 1804.

\(^4\) HRNSW, 5, p.516.

\(^5\) Figures compiled from HRA, 5, p.176 and Commissary's Return of beer brewed at Parramatta, 1804-5, CSIL (1789-1806), Bundle 1, p.209 [4/1719].

\(^6\) See Thomas Rushton's Return of Beer issued since the last return dated June 17th 1805, CSIL (1789-1806), Bundle 1, pp.210-13.

\(^7\) HRNSW, 6, pp.22, 40; HRA, 5, p.668.
During the period 1804-09 several other small breweries were opened in Sydney. In 1808 Rushton's brewery at the Brickfields sold "good strong beer at 2s. per gallon and fine table do. for private families at 8d. per gallon, bittered with hops only". In 1809 Enoch Kensella of Upper Pitts-Row advertised "a strong, clear, wholesome and durable beer;" and in the following year Absalom West opened a brewery on the Rocks near Dawe's Point.

By 1810 the brewing industry was established, if not very firmly, and beer production increased from this year onwards. But the government's purposes in encouraging the industry were not immediately or entirely achieved. Spirits were still very much in demand and, because of the vagaries of the seasons, grain was often scarce and brewing operations often interrupted because of grain shortages. Efforts by James Squire to cultivate the hop plant at Kissing Point had proved successful by 1805, and the acreage under hops increased from 15 rods in 1807 to 5½ acres in 1810. Pockets of Kentish hops were still being imported, however, but one contemporary authority recorded that the colony was approaching self-sufficiency in hops and soon would be no longer compelled "to have recourse to the Mother country for this necessary article". The acreage under barley increased four-fold from 1802 to

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1 SG, 19 June 1808.
2 SG, 29 January 1809.
3 SG, 22 October 1809. The enterprising emancipist, Andrew Thompson (1773?-1810), was given permission to open a brewery at Windsor in 1806. HRNSW, 6, p.72.
4 SG, 13 January 1805.
5 SG, 26 July 1807; HRA, 7, p.282.
1806, but declined after this date as a result of a combination of bad seasons and arbitrary government conditions following the deposition of Governor Bligh. After Bligh's deposition, conditions were inauspicious for a time for an industry that was specially designed to reduce the consumption of spirits. This was so because the governing elite, the officer-trader monopolists, profited greatly by the importation and retailing of spirits.

In 1810, however, the government was once more encouraging the brewing of malt liquors as it was "one of the most effectual Means of Inducing the Settlers to Cultivate their lands, and to raise an adequate Supply of Grain to meet the necessary Consumption of the population at large". A government public notice in 1810 announced that:

The principal brewers at Sydney having represented that it would be a great accommodation to the labouring people and to the lower classes of the Inhabitants in general, to have plenty of good wholesome beer brewed for their drinking, and permitted to be retailed to them at a moderate price, His Excellency the Governor, in view to their convenience, as well as to encourage the settlers throughout the colony to grow barley for this and other purposes, has been pleased to direct licences to be granted to fifty persons of Sydney to vend and retail beer.

In the following year four brewing licences were taken out, two of which were in Sydney.

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1 HRA, 5, pp.608, 773.
2 HRA, 8, p.80.
3 HRNSW, 7, pp.397-8.
4 SG, 16 March 1811.
Of the seven breweries opened to the end of 1809, five carried on operations for one or more years in the period 1810-1821. After 1810, six new breweries made their appearance only one of which was located outside Sydney: that built by Gregory Blaxland (1778-1853) at Brush Farm (Eastwood) about 1812.\(^1\) Wentworth, while not extolling the colonial product, regarded brewing along with distilling as one of the industries in which immigrants "might embark with a fair chance of success".\(^2\) Brewing then, even on a small scale, appears to have been relatively profitable as several of the town brewers moved to or built larger premises. Rushton moved from his Brickfield Hill site to build larger premises on the corner of Hunter and Elizabeth Streets. By 1820 Nathaniel Lawrence claimed to have effected improvements "at the Expence of about £1600;"\(^3\) and Squire claimed to have "lately Enlarged His Premises to Carry on Business sic ... to a much Larger Extent".\(^4\) But brewing continued to be a hazardous occupation, depending to a large degree on the seasons, the grain market, the supply of hops, and, of course, the availability and price of imported beer and porter, which was preferred to the local product. The instability of the industry is evidenced by

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\(^1\)The new breweries and the approximate dates of their establishment were Clarkson's 1810, Lawrence's 1813, Byrnes' 1815; Middleton and the Wellington in 1820.
\(^2\)W.C. Wentworth, \textit{op.cit.}, pp.419-20.
\(^3\)N. Lawrence to Judge Advocate Wylde, Wentworth Papers (1819-20), pp.149-50 [A.764].
the fact that of the eleven different breweries operating at one time or another, only four on an average were brewing in any one year; only one brewer, Thomas Rushton, held a licence for the seven years, 1815-1821.¹

Government regulation of the industry led to interference and a consequent decline in brewing in the years 1815-20, when, because of a slight economic recession,² one might expect less competition from imports. In 1815 six brewing licences were taken out, but this number was halved when the government made it obligatory for a brewer to take out both a beer and spirits licence together.³ Local brewers, who were forced to pay £55 in licence fees before they could brew and retail beer, were at a great disadvantage compared with the retailer of imported beer whose licence cost £30 and whose article was imported duty free.⁴ In 1817 and 1818 there were only three licenced brewers in the whole colony, but by 1821 the situation appears to have been remedied for in this year six licences were again taken out, including four in Sydney Town.

¹This statement is based on the government orders and notices promulgated in the Sydney Gazette. The number of licences granted is only known for the years 1811, and from 1815 to 1821. The number and other details of all the licences granted is to be found in the Sydney Gazette, 16 March 1811, 8 April 1815, 6 April 1816, 19 April 1817, 4 July 1818, 19 February 1820, 24 February 1821. The number of licences granted in 1819 is found in Bigge, Evidence, BT, 2, p.587.
³A brewing licence was £25; a spirits licence £30.
Apart from the various economic difficulties encountered, there were also technical problems to be overcome in brewing. Not the least of these problems was that of the proper malting of barley. The pioneer brewers found that barley malt could be made satisfactorily only in the winter months, and even then only near Richmond and Windsor where the winters were cooler than in Sydney.\(^1\) Local barley which vegetated unevenly in the malting process proved unsuitable, and though barley from Van Diemen's Land was better, it was found that colonial varieties produced only 40-50 per cent of the saccharine matter that English barley yielded. Ten bushels of colonial barley were allowed to be equal to six of the English variety.\(^2\) Malting in Sydney's warm climate was a real problem for pioneer brewers. One pessimist in 1820 was even of the opinion that breweries would not be successful on a large scale in Sydney as fermentation was too quick!\(^3\)

There are, unfortunately, no records extant that give a detailed picture of any of Sydney's early breweries. However, the evidence presented by James Squire to J.T. Bigge in December 1820 throws some light on early brewing practices and problems. Squire's brewery, tied

\(^2\)Evidence of J. Squire to Commissioner Bigge, 29 December 1820, BT, 9, pp.3931-2.  
\(^3\)Evidence of G. Blaxland to Commissioner Bigge, BT, 5, p.2108. For other comments on technical problems see the evidence presented to Bigge by the Hawkesbury settlers Archibald Bell and John Howe, BT, 2, pp.728-9, 732-3.  
\(^4\)The account which follows, unless otherwise stated, is based on Squire's evidence to Bigge, BT, 9, pp.3931-5.
closely to the rural framework, small in its scale of operations, and intermittent in working, was typical of many early manufacturing enterprises. His brewery and inn at Kissing Point on the Parramatta River was a famed half-way house for the considerable river traffic between Sydney and Parramatta, when the river was the main line of communication between the two towns. (Plate III) Situated in one of the early grain-growing areas, the brewery was sited close to the water which facilitated the delivery of grain from the Hawkesbury district and Van Diemen's Land and the despatch of the finished product to the main markets, Sydney and Parramatta.

Brewers, like most early manufacturers, were usually not entirely dependent on one activity for a livelihood, and Squire was no exception: his brewery was an integral part of an 800 acre farm. Squire held a brewing licence for at least five years during the Macquarie period and brewed almost entirely from Indian corn (maize) which enabled him to make malt all the year round. Most of the corn used came from farms on the Hawkesbury, but he also imported barley and wheat from Port Dalrymple in Van Diemen's Land. Squire, the pioneer of the hop plant in Australia, had a hop plantation of 7-8 acres adjacent to his brewery in 1820, but he also used imported Kentish hops. He dried malt upon an iron plate at the rate of forty bushels a day, and used

1 SG, 21 March 1812. Rushton also grew his own hops in the vicinity of the present Myrtle Street, Chippendale. In 1812 Rushton had 1½ acres in hops. SG, 15 May 1812 or 1813.
It is difficult to assess the quality of colonial brews, but it seems certain that English ales and porters were perceived as superior to local products, a prejudice against a colonial origin and quality that persisted even after the 1830s. It is possible that Squire's brand of "*colonial ale*" was not only a marketing strategy to appeal to the tastes of English immigrants, but also a reflection of the quality of the beer produced in the colony.

PLATE III - SQUIRE'S BREWERY C.1820
(From an unsigned oil painting in the Mitchell Library, Sydney).

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1. See advertisement for Khinda's Brewery in *NSW Record*, 2 June 1810.
3. *Evidences of D'Arcy Wentworth to Commissioner Riggs*, 7 November 1819, MS, 4, f. 36d.
forest oak for firing as coke from coal was too expensive. Squire found that a bushel of Indian corn produced about twelve gallons of good wort; he generally brewed about eight bushels of wheat and maize to a hogshead (54 gals.) of "best beer" - ten or twelve pounds of sugar being added to the grist. His brewery had an output of about forty hogsheads a week nearly all the year round.

It is difficult to assess the quality of the beer produced in the colony, but it seems certain that much of it was poor. The preference for English ales and porter could not have been simply the result of a prejudice against a colonial produce per se. A shortage of skilled brewers, together with the inferior maltings no doubt help to account for the poor article, the worst of which appears to have lacked body and had an acidic quality.\(^1\) There may even have been some truth in that jocose epitaph in Parramatta churchyard recording the power and virtue of Squire's brand of "colonial solatium", which Squire is said to have been fond of quoting

\[
\text{Ye who wish to lie here} \\
\text{Drink Squire's beer!}^2
\]

But, perhaps another factor that caused the beer to be of poor quality was the heavy tax on a brewing licence which, of course, reduced competition in the industry.\(^3\) It is certain, however, that there was a

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\(^{1}\) See advertisement for Kinsella's Brewery in SG, 2 June 1810.  
\(^{2}\) P. Cunningham, Two Years in New South Wales, 3rd ed. (London 1828), 1, pp.86-7.  
\(^{3}\) Evidence of D'Arcy Wentworth to Commissioner Bigge, 7 November 1819, BT, 2, p.587.
great demand for good quality beer by 1821. Brewers who produced a bad quality product quickly lost custom.  

The government generally encouraged the brewing industry, but forbade the distillation of spirits from either sugar or grain.  

However, illicit distillation, as in Ireland at this particular time, was an established if not hazardous occupation. Irish and English convicts brought their skills in the art of illicit distillation to their new home where the heavily wooded north shore of Port Jackson, and the sparsely settled country between Parramatta and the Hawkesbury abounded with stills or "engines of destruction" as they were officially called. The flow of government orders suppressing distillation and offering premiums for information leading to the seizure of stills attested the vitality of the industry. But illicit distillation continued despite very severe penalties throughout the period. In 1812 the Sydney Gazette observed that the practice prevailed "to an alarming extent", although persons convicted were fined and given sentences from three to five years in the coal mines at Newcastle.

As the agricultural efforts succeeded, the problem of a market for surplus grain and the daily example of the illicit stills in the colony caused Governor Macquarie to advocate the establishment of a

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1 William Cox (1764-1837) told Bigge that Blaxland's brewery at Brush Farm was "carried on with much success for a considerable time, after which from the making a bad quality of beer he lost his custom", Bigge, Evidence, BT, 5.


3 SG, 5 January 1811, 4 April 1812.
privately owned distillery. The advantages of a distillery had been brought to Macquarie's notice in 1809 before he took office.\textsuperscript{1} First in 1812, and then at regular intervals throughout his administration, Macquarie argued that a distillery would solve the market problem of "the Overplus Grain", induce farmers to extend their operations and provide a source of revenue to the colony.\textsuperscript{2} As in many other matters of Macquarie's administration there was a direct conflict of policy between the governor and the home government over the distillation question. Macquarie's view was that a safe market would be provided for surplus grain and that grain production would be stimulated to such an extent that the surplus would become permanent. The Colonial Office, however, held the view that capital investments should be the consequence of and not the reason for development. The home government's attitude was extremely cautious and generally unfavourable: not only was it unconvinced that the grain surplus would be permanent, but also it believed that the consumption of spirits was already too high. The whole matter was finally referred to Commissioner Bigge for investigation. His report, although somewhat cautious, was favourable towards the establishment of a distillery.\textsuperscript{3} A government order in December 1820

\textsuperscript{1}T.W. Plummer to Macquarie, 4 May 1809, \textit{HRA}, 7, pp.201-4.
\textsuperscript{2}Macquarie to Liverpool, 17 November 1812, \textit{HRA}, 7, p.593.
\textsuperscript{3}J.T. Bigge, \textit{Report on the State of Agriculture and Trade}, p.32.
announced that the principle had been admitted and that the governor
and commissioner were willing to receive proposals for erecting
distilleries. ¹ Rules and regulations governing the establishment of
distilleries were promulgated in the following year, clearly indicating
that the intended distilleries were to be relatively large concerns and
few in number. This is evidenced by the licence cost and the full and
precise building regulations for erecting them that implied a degree of
capitalization beyond the small settler.²

Winemaking was also attempted during this period. Several settlers
experimented with the selection of vines suited to local conditions and
one, Gregory Blaxland, received a gold medal, awarded in London, in
1823 for the best wine produced in New South Wales.³ However, he was
probably correct in supposing in a petition to Governor Macquarie in
1816 that the industry could not be firmly established until the
government allowed the distillation of colonial spirits.⁴

The manufacture of salt was the only other important activity
connected with the provision of foodstuffs. Salt was discovered in
1798 near the junction of the Bargo and Nepean Rivers, but the deposit

¹Government and General Order, 30 December 1820. The order stated that
distilleries would not commence operations until January 1823.
²SG, 10 February 1821 (supplement).
³G.J. Abbott and N.B. Nairn, Economic Growth of Australia, 1788-1821
⁴D.R. Hainsworth, Builders and Adventurers (Melbourne 1968), pp.144-7.
proved to be of little value. However, this deficiency was somewhat alleviated by boiling sea-water. The residue, though bitter, was used for salting fish and meat as well as for curing seal skins from the South Sea fisheries.

This operation was first carried out in 1790 on the eastern side of Sydney Cove where in 1795 another attempt was made by John Boston. The government imported and erected salt pans at Newcastle and at Rose Bay in Sydney Harbour.\(^3\) Shallow tidal water and proximity to a plentiful fuel supply were major factors determining the site of salt works, and although the Newcastle pans (established in 1805) were located "a few feet from an excellent coal mine",\(^4\) those around Sydney were less fortunate and had to move from place to place as they depended on a nearby supply of wood for the boilers.

Privately owned salt works were also established at Darling Harbour, Middle Harbour, Neutral Bay and on the Hawkesbury. One on Scotland Island in Pitt Water north of Sydney, owned by Andrew Thompson, was capable of supplying 200 lbs weekly in 1804.\(^5\) The largest and

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1. J. Turnbull, *A Voyage Round the World...* (London 1805), 3, pp.150-1. Later analysis showed that this deposit was only 48 per cent sodium chloride and the remainder sand. *JRAHS*, 6, (1920), pp.21-2.
5. *SG*, 2 and 9 December 1804.
most important salt works, which continued operations until the 1880s, was started by John Blaxland in 1807 on his Newington Estate on the Parramatta River.¹ Here near the confluence of the Parramatta and Duck Rivers, eight acres which resembled "the marshes on the banks of the Thames", were devoted to this purpose.² The salt water from the river was drained into shallow ponds or bays at high tide, and, after much of it had evaporated, the strong saline solution was pumped into vats and boiled. In 1811 Blaxland was advertising salt at 2d. per pound although the price fluctuated according to the availability and price of the imported article. However, most of the salt issued to the convicts was of local manufacture and the local product was exported to Van Diemen's Land. Large quantities of salt were being manufactured but much of it was of a very poor quality: it was produced by inefficient small concerns which took water too near the shore for boiling. A test carried out by a Castlereagh Street baker in 1820 showed that a sample of colonial salt consisted of one-sixteenth sand.³ Moreover, like the majority of the colonial workforce many of the salt-boilers were ignorant and unskilled. The Sydney Gazette records an instance where salt-boilers on the Hawkesbury were astonished to find no salt after boiling for five days when the river was running a fresh.⁴

¹These works ceased operations about 1885. JRAHS, 19 (1933), pp.119-20.  
²HRNSW, 6, p.310.  
³SC, 18 November 1820.  
⁴Ibid.
By 1821, certain industries connected with the production of food and drink, flour milling, brewing, illicit distilling and the manufacture of salt were firmly established.

(iii) The clothing and textile industry

Of the industries other than those connected with the provision of food and drink, and, perhaps building, the manufacture of textiles and clothing was the most important. Convict slop clothing was being made as early as 1790 by the female convicts in the government stores out of cloth imported from England.\(^1\) By 1821 much experimentation had been carried out with local fibres, several cloth manufactories had been set up, and many private individuals were advertising as makers of men's and women's apparel.

Experiments in the manufacture of woollen and linen cloths began soon after the first settlement. Samples of cloth made at Norfolk Island were sent to England in 1791\(^2\) and Whitehall encouraged and commended the enterprise and industry of the settlers. Hand looms were imported in 1798,\(^3\) and a coarse woollen cloth from local wool and linen, and canvas from native and non-indigenous flax were soon produced as a result of the home government's policy of encouraging the local manufacture of coarse convict slop clothing.\(^4\) In July 1799 Governor

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2. HRNSW, 1, pt.2, p.471.
3. HRNSW, 3, p.492.
John Hunter in a despatch to the Duke of Portland described the manufacture of colonial cloth from native flax and wool which was produced by crossing a Cape ram and a Bengal ewe.

The web of linnen is our first essay, and is from the wild flax of this country, which will no doubt improve from cultivation; at one end of this web it is cross'd by a thread spun from the bark of a tree; and a web from that bark is cross'd at one end with a thread of wool.¹

The textile industry was based from the outset on local raw materials, a practice that was stimulated by the "poverty of the public stores in the article of cloathing [sic]"² and encouraged by the home government policy on the exploitation of local industrial fibres.

The government once more took the initiative in a manufacturing venture. The government woollen manufactory was situated at Parramatta, close to the supply of wool and flax. Parramatta further guaranteed a good supply of fresh water and a suitable bleaching ground was provided by the grassy banks of the stream. Wool-growers took their wool to the Parramatta factory and received one-quarter of the manufactured cloth as payment.³ In 1804 five looms were at work producing a hundred yards of cloth per week and providing employment for fifty women and eighteen men.⁴ In the following year the government

¹HRNSW, 3, pp.693-4.
³HRNSW, 4, p.665. Later the proportion returned was one-fifth.
⁴HRNSW, 5, p.427.
⁵HRNSW, 5, p.426. Two looms each were making linen, duck, sailcloths and woollen cloth; the other was engaged in making sacking.
manufactured 3700 yards of "druggit canvas, sacking, girding and linen"; 220 yards of blanketting, flannel and coarse cloth, and 4600 fathoms of rope, lines and twine. As well as being provided with a public manufactory, settlers were encouraged to spin and weave in their own homes, and prizes of sheep and cattle were offered as incentives to those families who manufactured the most linen over a two year period.

The manufacture of textiles was entirely dependent on imported machinery and based on convict labour and local raw materials. Progress was slow, hindered mainly by the want of flax seed and skilled operatives. It was hoped by 1800 that the situation would be soon remedied by the importation of English flax seed and by the arrival of flax dressers and weavers among the increasing number of Irish convicts. Emancipation was made "the eventual reward of bringing that manufacture to perfection".

Closely associated with the government interest in the manufacture of cloth were persistent attempts to cultivate the industrial crops, flax and hemp. It has been shown that the possibility of growing flax in New South Wales was the only reason given in official documents to explain why Australia, and not some nearer place, was chosen as a

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1. HRNSW, 6, p.43.
2. HRNSW, 4, p.803.
3. HRNSW, 4, p.183.
solution for England's convict disposal problem. The British government was constantly on the look-out for a staple, especially if it had relevance to the Navy's requirements; and each of the early governors received special instructions to encourage the growing of New Zealand flax (Phormium tenax). Many attempts were made around Parramatta and on the banks of the Hawkesbury, but progress during the first thirty years was slight despite some promising results, direct government assistance, and incentives offered in the form of stock premiums. English, New Zealand and native flax (Gymnostachys anceps) were all used in early cloth manufacture; flax and hemp seed were imported from England and India and cultivated by both the government and settlers alike. In 1804 there were sixty acres sown in flax and hemp, and the latter was thought to promise good returns "on the low lands about the Hawkesbury and Nepean Rivers and on all the low lands subject to be occasionally overflowed". Native flax was very common around


2HRNSW, 3, p.493.

3HRA, 5, p.205.
Sydney, but it was inferior to the European plant. Flax, hemp, and *Phormium tenax* grew extremely well on the Hawkesbury. However, developments in the growth and manufacture of industrial fibres were limited, owing to ignorance in how to treat *Phormium tenax* and to the need to concentrate on food crops as a result of the disastrous floods and famines of 1806 and 1809.

In the early years the rate of development in the manufacture of textiles was also dependent upon the progress made in scientific sheep breeding, and several of the wealthier free settlers began crossing experiments in imitation of current practices in England. Before 1800, sheep were mostly of the Cape of Good Hope breed whose covering was mostly hair; but the introduction in 1796 "of a breed of Spanish sheep into the flocks of individuals" was soon producing better quality fleeces with the promise of a greater quantity of wool. By 1802 fleece weight had been increased to 5½ pounds. But the home government had definite ideas about the extent to which the manufacture of fine wool was to be permitted. In 1802 and again in 1807 the British government underlined the penal raison d'etre of the colony in encouraging the manufacture of coarse cloth and restricting the manufacture of the finer.

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1. *HRA*, 4, p.107. See Appendix B, Flax-Plants of New South Wales and Norfolk Island, *HRNSW*, 1, pt.2, pp.707-9. Several other native plants had a resemblance to English flax, especially the Gigantic Lily (*Doryanthes excelsa*). This plant was discovered in the neighbourhood of the George's River near Sydney about 1799; it was used by the natives to make fish gigs. New South Wales Pocket Almanack for 1813, p.50.


Throughout the period the supply of cloth for convict clothing from England continued to be less than the local demand. The failure of the home government to meet the convict needs stimulated the production of colonial cloth and the manufacture of articles of slop clothing. The government factory continued to manufacture the famous "Parramatta Cloth" and although it produced linen for shirting, towelling and sheeting from both New Zealand and local flax, by the end of the period it was concentrating solely on the manufacture of woollen cloth. In 1820 seven narrow and two broad looms were in operation producing from 260 to 390 yards of cloth per week. The government still bartered cloth and blankets for wool and the surplus cloth and blankets were used for government purposes.¹

Besides the government factory at Parramatta, several settlers embarked on the manufacture of woollens and hats. The emancipist Simeon Lord began the manufacture of hats in Sydney in 1811² and a few years later established a woollen manufactory. In 1816 he moved this to a site at the mouth of the Lachlan Swamps on Botany Bay. Lord was perhaps the largest entrepreneur engaged in manufacturing during this period and constantly employed at least twenty convicts in his various manufacturing ventures - cloth, hats, soap, candles and leather. In 1816 Lord entered into an agreement with the government to burl, mill, dye and dress cloth from the Parramatta factory at 1s.6d. per

¹ Evidence of Francis Oake to Commissioner Bigge, 22 September 1820. BT, pp.293-5.
² SC, 17 August 1811.
yard. Not only did he find a ready market in Sydney for his cloth, blankets, and hats, but also he exported these products to Van Diemen's Land. The difficulties which Lord experienced were typical of the problems constantly facing the colonial manufacture: his domestic products were often hard hit by the periodic flooding and uncertainty of the local market. This market largely depended on the arrival of speculative cargo ships from overseas: in 1817, for example, Lord claimed to have been "a good deal injured and impeded by the extensive Importations of Woollens and Hats from England and India". John Blaxland, another of the larger private manufacturers, also had a woollen factory on his Newington Estate where he produced cloth for his own needs. Blaxland's small factory employed three people and turned out thirty yards of cloth each week at a cost of about 4s. per yard. This cloth, which was claimed to be superior to that from the Parramatta factory, was made up into clothing for Blaxland's assigned servants.

Throughout the period the government manufactured large quantities of convict slop clothing. In six months in 1819 almost 4000 articles

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1 See the agreement between Lord and the government 28 August 1816, CSIL, Bundle 10, vol.15, pp.92-5 [4/1735]; S. Lord to Colonial Secretary, 18 July 1816, Ibid., pp.87-9. Lord, Williams and Hutchinson had previously tended with the government in 1812 to scour, mill and dye Parramatta Cloth. CSIL, Bundle 6, vol.8, p.275 [4/1727].


3 The memorial of Simeon Lord of Sydney, Hat and Woollen Manufacturer, to Governor Macquarie, 22 August 1817, CSIL, Bundle 11, vol.18, pp.225-8 [4/1738].

4 Evidence of John Blaxland to Commissioner Bigge, 18 August 1820, BT, 5, pp.2135-7.
of slop clothing were made in the so-called Lumber Yard from cloth manufactured at Parramatta and Lord's factory. In addition to Lord's establishment the government also made hats for convicts. Two new factories making hats from wool, flying squirrel and opossum skins were opened in Sydney in 1815 and 1821. In 1815 Reuben Uther (1791-1880), who had previously worked for Lord, opened a factory in Hunter Street which moved to 78 Pitt Street (between King and Market Streets) in 1817;\(^1\) the other factory in Phillip Street opened in 1821. Towards the end of the Macquarie period there was an increase in the number of persons advertising in the columns of the *Sydney Gazette* as tailors and makers of all types of men's and women's clothing.

(iv) The metal trades

Manufactures associated with the need to feed, clothe and shelter the population of the penal colony were the most important in the early years, so the production of agricultural implements was a basic industry from the beginning. In an eighteenth century agricultural economy the chief demands made on the metal trades were for hoes, sickles, and ploughs. After the introduction of the first plough in 1795, and the erection of windmills in 1797 greater demands were made on the metal trades in both forward and backward linkages.

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\(^1\) *SG*, 25 March 1815, 30 August 1817.
Supplies of iron and steel, which were brought periodically from England, were converted by smiths at the government forge and later at the Lumber Yard into hoes, sickles, and other implements of husbandry.¹ For many years the hoe was the main agricultural implement, but by 1803 the government was supplying the iron necessary for making ploughs to the more industrious settlers.²

Throughout the period 1788-1821 the government operated the largest foundry, and employed in the Lumber Yard a large number of convict tradesmen in almost every branch of the metal trades. This multi-purpose industrial establishment was located at the head of Sydney Cove. (Fig. 3) In it were to be found blacksmiths, whitesmiths, nailors, iron and brass founders, tinmen, bridle-bits and stirrup makers, gun and anchor smiths, and many other tradesmen.³ Cast iron work was among the products turned out: the wheel for the Waterloo flour mill was cast here. The iron used was imported from England at prices that ranged from £40 to £85 per ton,⁴ but sometimes scrap iron was broken up and used.⁵ Charcoal and coal for the Lumber Yard came from the government outpost at Pennant Hills and Newcastle.

¹HRNSW, 2, p.345.
²HRNSW, 5, p.107.
³Evidence of George Druitt (1775?-1842), the government civil engineer, to Commissioner Bigge, BT, 1, pp.50-1.
⁴Ibid., p.60.
⁵Bigge, Evidence, BT, 11, p.4280.
The working up of imported metals into both agricultural and domestic utensils appears to have been a purely government activity for about the first twenty years. But a small private tin manufactory commenced operation in 1808 and about this time individual blacksmiths began to advertise their wares in the weekly newspaper.\footnote{SG, 29 May 1808; 5 November 1809.} A "Wood Screw Manufactory" was opened in Castlereagh Street in 1815;\footnote{SG, 22 April 1815.} a small factory specialising in agricultural implements, ploughs, harrows, thrashing and cleaning machines was opened the following year in Hunter Street;\footnote{SG, 8 June 1816.} and two manufacturing silversmiths were in business in Sydney by 1820.\footnote{SG, 14 October 1820.} An advertisement in the Sydney Gazette shows the extent to which the metal trades were developed by 1821: George Cutter, of 89 Pitt Street informed would-be customers that he has fitted up an extensive and commodious Workshop, whereby he will be enabled to carry on Smiths' Work, in all its various branches, anchors, stoves, try-pots, and ship's boilers made to order on the shortest notice. Engine work and steel mills got up in the best manner, edge tools, locks of every description, copper, brass, and tin work; bells neatly hung, waggons, carts, and chaises made on improved plans; ploughs, harrows, and all sorts of husbandry utensils...and horses shod on the veterinary system.

Husbandry Utensils made to order, for exportation.\footnote{SG, 21 April 1821.}

Once again, it is to be noted, a wide range of goods were produced by one factory - a characteristic common to almost all branches of

\begin{itemize}
\item\footnote{SG, 29 May 1808; 5 November 1809.}
\item\footnote{SG, 22 April 1815.}
\item\footnote{SG, 8 June 1816.}
\item\footnote{SG, 14 October 1820.}
\item\footnote{SG, 21 April 1821.}
early manufacturing.

The metal trades depended on imported metals but early attempts were made to smelt local iron ore. Local ironstone "found a few yards under the surface" was tried but proved to be of low ore content; it was realised by 1804 that "the expense to the Crown would be far greater in manufacturing it than furnishing the necessary article from England".¹ A low ore content of about twenty per cent,² together with the high cost of labour precluded any success in this branch of industry. The enterprising Simeon Lord obtained permission to work an iron ore mine at Port Dalrymple (Van Diemen's Land) and smelt it in Sydney near the coal supply and market, but the project was never put into effect.³ Hopes, however, were held for the supposed great mineral wealth of the colony, but in connexion with the conflicting penal and commercial aims of the colony, a warning was sounded by Commissioner Bigge:

Iron Founderys [sic] might be established here with Great Benefit, as this Country abounds with the richest ore, this would doubtless be a means of employing a number of convicts. But...it would not be so likely to tend to their reformation as Agricultural Occupations.⁴

In general, Bigge's Report discouraged the manufacture of goods that could be imported from England, and endorsed the opinion that only the employment of convicts in the management of sheep would be conducive to the convicts' improvement and reform.⁵

¹Governor King to Lord Hobart, 20 December 1804, HRNSW, 5, p.527.
³S. Lord to Governor Macquarie, 20 February 1822, CSIL, Bundle 6, vol.8, p.55 [4/1727].
⁴HRA, 3, p.572.
(v) **Other manufactures from local materials**

Boat-building, like distilling, suffered from government restrictions for obvious reasons, though not to such an extent that it was at any time completely suppressed.\(^1\) Despite government interference, the industry does not appear to have suffered too adversely. Hainsworth has shown that even by the early 1790s more boat-building and ship-owning was going on than the governors in their dispatches chose to admit.\(^2\) As the result of the enterprise of ex-convicts, passage and trading boats operated very early between Sydney, Parramatta, and the Hawkesbury settlements. In 1802, Baudin, the French cartographic surveyor and naturalist, was able to purchase a twenty-ton vessel from a colonist to accompany his *Le Geographie*. But it was the possibilities of the sealing industry, the colony's first staple, that really launched colonial shipbuilding.\(^3\)

Among the earliest and most productive shipbuilders were the emancipists James Underwood (1776?-1844) and his partner, Henry Kable (1763-1846), who began work at least as early as 1797.\(^4\) They built many of the seventeen small craft, averaging twenty tons burden,

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\(^1\)See Chapter 3 for the extent of government restrictions on boat-building.  
\(^3\)Ibid., p.19.  
\(^4\)Ibid., p.20.
which officialdom noted had been built at Sydney by 1804.¹ In April 1805 they launched the 185-ton fully rigged ship King George, their last major undertaking.²

In 1804 the merchant Robert Campbell (1769-1846) began shipbuilding at the back of his lower warehouses at his wharf on the east side of Sydney Cove. From his yards were launched the 170-ton Perseverance in 1807 and the 136-ton Queen Charlotte in 1813.³ It was also not uncommon for smaller traders to build their own vessels for the Hawkesbury or coastal trade: at least a dozen such builders can be readily identified, including Thomas Reibey (1769-1811) and the brothers William and James Jenkins.⁴ The government, for its part, could not be regarded as extremely active in boat-building. Nevertheless in 1816 the 150-ton brig Elizabeth Henrietta, whose keel had been laid down by Governor Hunter in 1800, was launched from "His Majesty's Dock Yard".⁵

The main centre for boat building shifted from Sydney Cove to Cockle Bay (Darling Harbour). Not only were there better facilities

¹HRNSW, 5, p.311. By 1804 five vessels had been built on the Hawkesbury near Windsor, where there were both the necessary raw materials and the demand for boats to carry agricultural produce to Sydney. Andrew Thompson built three of these. See J.V. Byrnes, "An Outcast Goat, or the Life and Times of Andrew Thompson" (unpublished M.A. thesis, University of Sydney, 1957), vol.1, p.143; SG, 19 February 1804; 11 September 1808.
²Hainsworth, loc.cit., p.20.
⁴Hainsworth, loc.cit., p.21.
⁵SG, 15 June 1816.
there, but a government order in February 1811 had prohibited provision and market boats from landing at any part of Sydney Cove and directed them to tie up at the new market wharf at the foot of Market Street.¹

Boat-building and servicing naturally followed the shift of the terminal and two private builders, Charles Griffins and William and James Jenkins, were operating here by 1811, building vessels from forty to 150 tons.² Thomas Moore (1762-1840), former government boatbuilder, told Commissioner Bigge that colonial timbers were suitable for both boat and shipbuilding. *Banksia oblongifolia* and *B. senatta* were much used for boat knees, and ironbark, stringybark, blue and black-butted gum for masts. Stringybark, blue gum and native mahogany were used for bulkheads and cedar for internal work and planking.³

Despite official fears and edicts connected with the proliferation of boats - natural enough in a penal colony - by 1821 boat-building and its linkages were rapidly expanding industries. The sea was the only means of communication between Sydney and its outposts at Parramatta, Newcastle and the Hawkesbury settlements. The number of vessels that operated with a local registration in the period 1800-21 is surprisingly large; between 110 and 120, of which only about a dozen were built outside the colony. These vessels ranged in size from a

¹*SG*, 16 February 1816.
²*SG*, 6 July, 12 October 1811; 14 May 1814.
³Bigge, Evidence, BT, 5, pp.2074-5.
few tons to the ocean-going vessels of over a hundred tons that pioneered the South Seas sealing and Pacific Island trades. Bigge reported that twenty-nine government vessels, from about 15 to 180 tons burden, were engaged in a very active coastal and riverine trade. Trade between Sydney and Van Diemen's Land was increasing: over 100,000 bushels of wheat and 500 casks of salted meat were imported from Van Diemen's Land in the period 1815-1820; salt and timber were returned as backloading. Wheat was sent by boat from Windsor to Sydney, or direct to the convict outpost at Newcastle and cargoes of cedar and coal were returned. A flourishing coastal trade, the important sealing industry, and the rise of Sydney as a more regular port of call for overseas ships, combined to stimulate building and its linkages such as sail, rope, and block making.

Tanning was another industry based on local raw materials. Several small tanneries were established at Sydney and Parramatta between 1803 and 1810, including one by the government. Two were

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1 Hainsworth, loc.cit., p.21.
2 J.T. Bigge, Report on the State of Agriculture and Trade, p.54.
4 See J.S. Cumpston, Shipping Arrivals and Departures, Sydney 1788-1825 (Canberra 1963). Dr Cumpston's list shows that about fourteen overseas vessels per month entered Port Jackson in 1821.
5 See SG, 1 January 1804; 19 October 1806; 6 November 1808; 25 June 1809.
6 SG, 22 December 1810.
established in Sydney in 1803; one William Goff's in lower Pitt Street, ¹ and the other Wilshire's at the head of a chain-of-ponds on the slopes of Brickfield Hill which was then the southern perimeter of the town. ² There was an abundance of tan bark, and lime was easily prepared by burning shells; however, the development of the tanning industry depended largely on the increase in the number of European livestock, especially horned cattle. Kangaroo skins were tanned as early as 1794, but according to Collins "the animal was not found in sufficient abundance to answer this purpose for any number of people". ³ In 1803 there were only about 2500 head of cattle in the colony and by April 1810 the number had only increased to about 11,000. ⁴ But by 1806, according to one optimistic authority, tanning had arrived at "an admirable state of perfection" and "the rapid increase and flourishing state of the cattle and other livestock...presented the prospect of resources whose benefits will be great and general". ⁵

During Macquarie's governorship two circumstances particularly influenced the development of the tanning industry: first, the small quantity of poor quality leather sent from England meant there was a

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¹ SG, 1 January 1804. Goff (Gough) advertised his business for sale in 1808. See SG, 6 November 1808.
² Memorial of James Wilshire to Governor Macquarie, 14 January 1815, in Bigge, Appendix, BT, 13, p.903.
³ D. Collins, op.cit., 1, p.342.
⁴ HRNSW, 5, p.205; 7, p.364.
⁵ Letter to the Printer of the Sydney Gazette, 23 March 1806.
regular and increasing demand for good leather; second, the cattle population of New South Wales increased from 11,000 in 1810 to 68,000 in 1821. By 1821 the County of Cumberland (Sydney's immediate hinterland) contained 84 per cent of the total number of cattle, and about 24 per cent were returned for the Sydney district alone - the same proportion as in 1810. Tanneries were located at all points where stock were slaughtered, and Sydney, the main cattle market, with no fewer than eight slaughter houses, was the centre of the tanning industry. The large government slaughter house on Darling Harbour slaughtered 1850 head of cattle in the year 1819-20.

There were seven tanneries operating in Sydney in 1821 and in addition there were a number of persons, such as shoe and harness makers, who tanned in tubs instead of pits. Most tanners were unskilled and self-taught; only one, James Wilshere, was said to be "bred to the business in England". Most tanneries were very small concerns. The largest was Wilshere's which had forty pits in use by 1815.

1See annual returns of livestock in HRA, vols.7-10 inc.
2i.e. the "police district of Sydney" which excluded Parramatta, Liverpool, Windsor.
3Bigge, Appendix, BT, 12, p.279.
5In this year there were five tanneries at Parramatta and two at Windsor; the New South Wales total was sixteen.
6Bigge, Appendix, BT, 20, p.3463.
7Bigge, Appendix, BT, 13, p.907.
There are few business records extant of any of Sydney's manufacturing firms before the second half of the nineteenth century. Fortunately, however, the detailed evidence given by James Wilshire to Commissioner Bigge in 1821, together with other manuscript and printed sources, enables a rudimentary business history to be sketched for one of Sydney's first and most successful factories. The surviving records of Wilshire's firm tell us much about the resource basis and the economic and technical problems of the tanning industry. Indeed, it could be said that the progress and development of the tanning industry in New South Wales is the story of Wilshire's tannery which operated continuously from 1803 to 1861.

The tannery, located on the outskirts of the town (See Fig. 3), was on a site that commanded a considerable expanse of ground space, a good water supply for washing and steeping hides, and facilities for the discharge of effluent. The tanning industry was based entirely on local raw materials. Wilshire bought hides from both the government and private slaughter houses in Sydney and Parramatta, and lime and tan-bark were prepared from local materials. He used 150 tons of green and black wattle or mimosa bark a year. By 1820 this bark had to be carted thirty or forty miles from the interior owing to the depletion of nearby trees. Tan-bark in its green state cost £3 per ton; after it was dried, chopped and ground for use it cost the

1 The account which follows, unless otherwise indicated, is based on Wilshire's evidence to Commissioner Bigge, BT, 9, pp.3846-54.
manufacturer £6 per ton. The numerous complaints about the superfluity of dogs in the town meant that there was certainly no shortage of dog's excrement, an ingredient which was added in small quantities to the tanning fluid.\(^1\) By 1815, 1500 hides were constantly being treated; in the years 1819-20 the annual output of the tannery rose to 1900 hides, 8000 kangaroo skins, 600 sheep and 140 calf skins.

Like most other industries tanning was not carried on in isolation. The relatively small domestic market for leather did not permit too much specialization so Wilshire's firm also manufactured soap, candles, parchment and glue. A degree of integration was evident by 1820 when Wilshire described his business as "a large Manufactory in the Tanning, Currying, Soap Boiling and Woolstapling Concern".\(^2\)

The success of Wilshire's establishment was due to a number of reasons. First, there was a large demand for leather: the business was established "at a time when the colonists laboured under very serious disadvantages and were put to enormous expenses in procuring leather for shoes".\(^3\) Second, unlike nearly all of his competitors, the proprietor was a free settler, and apparently the only one who had capital as well as experience. Third, the tannery profited by a large government market, for Wilshire had contracted to supply the 73rd

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\(^1\)See, for example, SG, 7 June 1807, 18 November 1820, and Government and General Orders, 13 April, 11 August 1810, 14 March 1812.  
\(^2\)Advertisement in SG, 14 October 1820.  
\(^3\)Memorial of J. Wilshire to Governor Macquarie, 14 January 1815. Bigge, Appendix, BT, 13, p.903.
Regiment with leather as long as they remained in the colony. A measure of the value of this contract to Wilshire was that he was paid over £500 from the colonial (i.e. police) fund for leather, soap, candles and glue in the seven month period, July 1820 to February 1821.

Wilshire, however, had to face competition from a number of small tanning concerns producing a great deal of inferior leather. Unscrupulous operators stained hides in a tanning solution for only about twenty or thirty days "to give them the appearance of Leather", and then worked them up into shoes and harness. By blacking the edges of the finished product the fraud was not discovered until it was too late. Wilshire, in what was the first request for the maintenance of standards in industry, complained in 1815 that

This Traffic of stained Hides instead of manufactured ones has been carried on to such an extent of late years that all Hawkers of and Dealers in this Trash can afford to sell it for less than one half the price of Leather fairly and properly manufactured.

In 1815 requests were made for government control and for the licensing of tanners to prevent such practices. With the support of Simeon Lord the requests were repeated in 1818, but were dismissed.

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3 Memorial of J. Wilshire to Governor Macquarie, 14 January 1815, loc.cit., pp.907-8.
4 Judge Advocate Wylde to Macquarie, 9 October 1818, CSIL, Bundle 12, vol.21, pp.28-42 [4/1741].
The development of the tanning industry and the deficiency in the supplies of footwear sent out from England stimulated the manufacture of boots and shoes. The demand was great as each convict needed two pairs each year and the quality of footwear sent from England was inferior. Instances were common of the military selling their footwear from 2s.6d. to 3s.6d. per pair and taking local leather in exchange. At this time the price of a coarse pair of shoes made in Sydney ranged from 5s. to 7s. per pair.¹ A small boot and shoe factory was set up in Sydney in 1809² but by the close of the period the few convict shoemakers who had newly arrived were being retained in the government service instead of being assigned to settlers. And, although fifteen shoemakers were employed in the lumber yard and were each producing a pair of shoes per day the deficiency for government purposes was not solved by 1819.³ Colonial made footwear was held in high repute, but the small number of private shoemakers advertising their business indicates that imports - as distinct from the government consignments - were being preferred amongst the more affluent members of society.⁴

¹ Bigge, Evidence, BT, 9, p.3852.
² SG, 5 November 1809.
³ Bigge, Evidence, BT, 1, p.158.
⁴ Shoemaking and repairing are very small businesses, servicing a very localised and familiar market, so they would not need to advertise very much. But considering the demand and the fact that only two advertisements for footwear appear in the Sydney Gazette, 1809-21, this conclusion seems valid, See SG, 18 August 1810; 18 August 1819.
Other smaller manufactures, that tended to strengthen the private manufacturing sector of the economy, and were produced from local materials were: earthenware, pottery, soap, candles, tea, cider, dyes, chemicals, glass, paper, furniture, rope and tobacco.

Earthenware, tobacco pipes, and pottery for domestic use were manufactured in lower Pitt Street, on Brickfield Hill, and at Darling Harbour. Samuel Skinner's (fl.1803-11) pottery in Pitt Street which began in 1803 was the most celebrated and the wide range of domestic ware turned out here was claimed to be "in a very superior style of workmanship". William Cluer's tobacco pipe manufactory, begun about 1804 was still in operation in 1821. Soap was manufactured as early as 1796 and the manufacture of soap and candles, closely associated with the establishment of tanneries, began regularly around 1805. Tea was prepared from several trees and shrubs of the Myrtle family; cider was produced from peaches. Indigo and fustic dyes were

1 SG, 12 October 1816; 31 July 1818.
2 D.D. Mann, The Present Picture of New South Wales (London 1811), p.43. See also SG, 2 October 1803.
3 SG, 23 December 1804, 21 April 1810, 21 April 1821. He appears to have sold out and returned to England in 1821.
4 D. Collins, op. cit., 1, p.113.
5 See SG, 3 February 1805: "The operations of the soap-boiler have already been successful in reducing the price of the article, tho' little can as yet be said of its improvement in quality...the attempt must - in a little time be found profitable to the consumer as well as to the manufacturer." See also SG, 2 October 1808.
7 SG, 29 April 1804; 3 March 1805.
prepared, and turpentine was extracted from the black-butted gum. The oils and resins of the Red Gum (*Eucalyptus resinifera*) and the Peppermint tree (*E. piperita*), together with several others, were found to have high medicinal qualities. Special articles - usually reprints of articles in the *Encyclopaedia Britannica*, standard textbooks or from overseas newspapers - were published from time to time in the *Sydney Gazette*, indicative of the lack of skilled tradesmen and the demand for manufactured goods in an infant community, isolated from regular supplies. In 1805-6 articles were published in the local press on the manufacture of soap, salt, hemp, tobacco, vinegar and turpentine.

The manufacture of glass and paper was attempted, but these ventures were shortlived. Simeon Lord established the first "Glass Manufactory" in Sydney in 1812 which turned out tumblers "of a fine and clear flint glass;", but these works soon closed because of the lack of skilled craftsmen. In 1818 Warren and Duncan, later Fisher and Duncan, erected a water-powered paper mill on the Lachlan Swamps. This mill made use of linen and rags for pulp and commenced work in May 1818. By July "a considerable Enlargement of the Manufactory"

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4. *SG*, 3 March, 7 and 28 April, 15 December 1805; 8 June, 14 September 1806.
was contemplated, but little is known of the mill's presumably short life apart from the fact that it produced the paper for the supplement to the *Sydney Gazette* dated 29 July 1820.

Boat-building and the gradual increase in the shipping traffic of the port of Sydney led to the establishment of certain manufactures connected with maritime pursuits. Of these, the manufacture of rope was the most important. Cordage and fishing lines were at first spun from the bark of the various native Kurrajongs, but no fewer than three rope-walks were established after 1810. This colonial industry was stimulated by the European wars, which restricted the supply of Russian hemp to England and severely reduced imports of rope. In about 1812 Robert Williams opened a rope-walk in Castlereagh Street which produced rope, lines, cordage, shoemaker's hemp and sewing twine from imported New Zealand hemp. In 1813-14 Williams, who claimed to have discovered a new method of cleaning, preparing and manufacturing the New Zealand flax plant (*Phormium tenax*), planned to establish a plant somewhere in New Zealand to treat flax and hemp, but his plans for "a Hemp trade from New Zealand

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1 Supreme Court Papers, Bundle 22, document No.18 (NSWA).
3 Samuel Pugh's rope-walk was established in Phillip Street in 1810, *SG*, 5 May 1810; William Warring's in Price Street (now Bradfield Highway) in 1820. *SG*, 21 October 1820.
4 *HRA*, 9, p.267.
5 *SG*, 7 March 1812; 29 April 1815; 20 October 1821.
to Port Jackson" went astray.\textsuperscript{1} Nevertheless he continued his experiments on New Zealand fibres and in 1816 again requested permission to establish a flax business across the Tasman.\textsuperscript{2} Samples of Williams' manufactures were found not to be equal to those manufactured from Chilean or Riga hemp when examined in London in 1818,\textsuperscript{3} but by 1821 Williams had improved his manufactures so much that they received the approbation of Commissioner Bigge in his report.\textsuperscript{4}

Furniture and cabinet makers combined their trades with upholstering and undertaking businesses as well. Butler's opened in Pitt Street in 1811\textsuperscript{5} and Hunt's in upper George Street in 1819.\textsuperscript{6} They were the largest furniture firms and produced to order chairs, sofas, sideboards, "secretaries", chests of drawers, cane-bottomed chairs, dining, dressing and other tables.\textsuperscript{7}

Tobacco was found to grow well in the colony.\textsuperscript{8} Several small plots were grown in 1820 on the Nepean and South Creek and the

\textsuperscript{1}For the reasons for failure see Bigge, Appendix, BT, 13, pp.583, 674-750.
\textsuperscript{2}Memorial of R. Williams to Macquarie, 24 May 1816, Bigge Appendix, BT, 17, p.2196.
\textsuperscript{3}Bigge, Appendix, BT, 17, p.2196.
\textsuperscript{4}J.T. Bigge, Report on the State of Agriculture and Trade, p.53.
\textsuperscript{5}SG, 2 November 1811; 11 February 1815; 27 October 1821.
\textsuperscript{6}SG, 30 January 1819.
\textsuperscript{7}SG, 7 July 1821.
\textsuperscript{8}Sergeant Jonas Bradley (1769-1841), of the New South Wales Corps, was the first successful grower of tobacco in the colony.
government farm at Emu Plains yielded almost a ton of tobacco from four acres.¹

A considerable amount of manufacturing activity and experimentation in manufacturing had been carried out in New South Wales between the foundation of the colony and the end of the Macquarie period. During this period, indeed before 1810, the foundations, however shaky, had been laid for the four main manufacturing groups that were to dominate the colony's manufacturing structure throughout the nineteenth century: food and drink, clothing and textiles; the metal trades; and the industries associated with building and construction.

The government, out of necessity, had become involved in many industrial enterprises: the largest employer of labour, it endeavoured to stimulate certain industries by offering incentives or premiums, and to discourage others by prohibition or regulation. It was perhaps to be expected that the government's role in manufacturing would diminish in proportion to the arrival of free settlers and the inflow of private capital, yet the extensive programme of public works kept up its participation in manufacturing as well as stimulating many private trades and industries. In 1821 the government still maintained a woollen manufactory, a dockyard, saw-pits, brickworks, lime

¹ Letter to the Printer of the Sydney Gazette, 8 September 1821. Cf. Governor Macquarie to Lord Bathurst, 21 July 1821, HRA, 10, p.533.
kilns, a slaughter-house, and the Lumber Yard where over forty different trades were carried on.

But despite the government's preponderance in manufacturing, emancipists and the increasing number of free settlers were beginning to change the organization of industry by taking over government ventures and establishing others. It was natural that some Englishmen imbued with the spirit of the entrepreneur, the dominant spirit of their age and country, soon sought opportunities for their enterprise in New South Wales. If it could be said that the years 1788-1821 saw the foundation of agriculture and grazing as well as the genesis of Australian commerce, it is also true that they witnessed the origins of manufacturing and the rise of a small and growing private manufacturing sector in the economy.

In 1807 Governor Bligh observed that manufacturing was "extremely trifling", but in 1822 ex-governor Lachlan Macquarie noted that while "Trade and Manufactures have not increased in the same ratio as Agriculture and Grazing", trade was considerable and "some useful branches of Manufactures had been established". Although in the first thirty years there was much activity and experimentation in manufacturing and significant progress in some branches of industry, the degree of industrial progress was very small in absolute terms. The development of manufacturing was certainly not nearly commensurate with the

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1 HRA, 6, p.157.
2 HRA, 10, p.675.
PLATE IV - SYDNEY, c. 1820.

A view of the town from the vicinity of Kirribilli, showing the windmills on the ridges and at Miller's Point, extreme right.

(From J. Lycett, Views in Australia).
agricultural and commercial achievements of the period. Manufacturing was characterised by smallness in scale, intermittence of production, and by a scarcity of skilled mechanics. Advertisements in the only newspaper of the day used the style "manufactory" when referring to a manufacturing concern or when puffing local products, but quite often these "manufactories" were one-man establishments; perhaps at best they consisted of a master and apprentice and were almost invariably without machinery of any kind. The industrial achievement of the penal colony, however, could be said to be typified by man's most obvious modifications to the low skyline of Sydney Town: the windmills, which dominated the windy ridges of either side of the valley of the Tank Stream and other high ground. (Plate IV) Near to the market, small in their scale of operations, intermittent in working and contingent upon the rural framework, these windmills embodied the chief characteristics of the industrial development of the period.

To the end of 1821 and for many years afterwards developments in manufacturing were characterised by the setting up of small enterprises of a kind that might have been expected in a colony separated in both time and distance from the mother country. Though there were some improvements in technique, and in quality and variety of manufactured products, manufacturing was almost solely concerned with the necessities of life - with goods mainly for local and immediate consumption. Yet despite the variety and scope of the developments
in manufacturing, this branch of economic activity contributed little to the wealth of the colony when compared with the earnings of commerce and the land industries.\(^1\) New South Wales had numerous small industries and an industrial pattern was emerging, but the real wealth and prosperity was derived from trade and from the land. Progress and stability in most branches of manufacturing was affected and restricted by the level of imports throughout the whole period. Only industries like flour milling, boat-building and brick making, which all benefited from a large degree of natural shelter, could be said to be firmly established.

\(^1\)See S.J. Butlin "An Early Estimate of Australian National Income", Economic Record (1938), pp.266-8.
Chapter 2

DEVELOPMENTS IN MANUFACTURING, 1822-1850

During this period the penal character of the colony\(^1\) of New South Wales was diluted by the increase of free immigration and by the pastoral occupation of the outlying parts of New South Wales which were to become in the 'fifties the colonies of Victoria and Queensland. Between 1793 and 1825 only about 5000 persons migrated to the colony, but from the mid-'twenties immigration increased following the Bigge Report and a new land policy. After 1835 the immigration of free British workers and natural increase produced a significant change in the composition of the population. This was further accentuated by the abolition of the transportation system in 1840. In all, in this thirty year period, the population of New South Wales increased from about 40,000 to 180,000, and the population of Sydney and suburbs from about 11,000 to 54,000.\(^2\)

Accompanying these demographic changes in quantity and quality of the population, were important developments in the primary industries, commerce, and political life; and, as could be expected, this period of rapid expansion of settlement and increasing production in primary

\(^1\)New South Wales was, at law, no more than a penal settlement until 1823. In this year a Judicature Act made it a Crown Colony.

\(^2\)The figures for 1851 are taken from the 1851 census which was completed before the discovery of gold. The population of the city proper was 44,000: the eleven suburbs accounted for 10,000 persons.
industry also saw new developments in manufacturing. New industries, larger factories and increased specialization, the appearance of public manufacturing companies with larger capital, increased use of steam power, and greater technical proficiency in the metal trades were the most important aspects of the industrial development of this period. The manufacturing sector of the economy expanded, and, although Sydney for obvious reasons remained the most important single manufacturing point, it did not possess an absolute monopoly over all manufacturing ventures. The fact that the new settlements were often a long distance from Sydney meant that in many cases the conditions that operated in Sydney in its foundation years were duplicated in the newer towns like Maitland, Bathurst and Goulburn. Industries based on the produce of the land, such as flour milling, brewing, and tanning were widely dispersed.

As in the earlier period, the manufactured products were mainly perishable or semi-durable consumer goods. But there was also some production of capital goods (e.g. steam engines, agricultural and boiling-down equipment) and development of maintenance and servicing industries, such as those connected with boat-building and the supply of gas. Domestic manufactures were claimed to have increased from about fifty products in 1840 to over 130 by 1849; existing industries expanded as the need required and some, such as engineering, boatbuilding, coachbuilding, cabinet making, meat preserving and printing were firmly

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1 SMH, 20 October 1849.
established. Other products manufactured either for the first time or in increasing quantities were spirits, sugar, soft drinks, tobacco, textiles and clothing, leather, soap and candles.

The expansion of the original colony, and the foundation of new ones, drew on the mother country for capital as well as people. The thirty years after 1820 saw an increasing amount of British investment in the colonies, and though the investment was small compared with the flow of British capital to North America it was sufficient to transform the colonial economy. In the 'twenties and in the boom period of the 'thirties, English capitalists invested more readily in the colony and although estimates of private capital imports in the period are necessarily approximate, Hartwell estimates that not less than £2 m. was invested in New South Wales in the 'twenties. However, there is no doubt that most of this went into the pastoral industry rather than into manufacturing; indeed, the character of this investment is evident in the formation in 1824-5 of two chartered land companies (each with a nominal capital of £1 m.) and in the founding of many banks and insurance companies in the 'twenties and 'thirties which were connected with the wool trade.

Yet the formation of two large public manufacturing companies in the boom period of the late 1830's is evidence that not all English capital was invested in the land industries. The antecedent of the

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present Colonial Sugar Refining Company was founded largely on British
capital as was the Australian Gas Light Company, although to a lesser
extent. The Australian Sugar Company was formed in London in 1839 and
£20,000 worth of plant and machinery was purchased and sent to Sydney
to equip a refinery. Although the financial crisis of the time and other
difficulties led to the dissolution of the original company, its assets
were taken over by another company (the Australasian Sugar Company)
which had a capital of £23,000 in £50 shares, partly subscribed by
Sydney merchants.¹ The Australian Gas Light Company formed in 1837
used mainly local capital; only £8000 of the £45,000 raised from the
public between 1836 and 1844 was subscribed in Great Britain.² Capital
for the development and extension of manufacturing was thus both
accumulated locally and acquired from overseas. The movement of capital
from commerce to manufacturing, first evident in the Macquarie period,
continued throughout 1822-50, duplicating in this respect contemporary
American experience.³

Before dealing in turn with the main groups of manufactures the
effects of the trade cycle should be mentioned as another factor

²J. Ginswick, RAHSJ, 45 (1960), pp.236-7.
³V.S. Clark, History of Manufactures in the United States (New York 1949),
vol.1, p.367.
influencing the growth of manufactures. This thirty year period was marked by a series of alternating booms and slumps, the effects of which were widespread on the economy and, though impossible to measure, no doubt affected the progress of local manufacturing.

The 'twenties, as Hartwell points out, saw the first macro-cyclical movement that can be detected in the developing economy. Indeed, the appearance of the trade cycle was a sign of economic growth and it gave impetus to "technical innovations, to improved management, and to the elimination of inefficiency in production". During the 'twenties, settlement expanded and wool replaced the South Sea fishery products as the staple export of the Colony. In 1821 the colony was still largely a prison settlement dependent on Great Britain for almost everything but some basic foodstuffs and some simple manufactures. By 1826 the picture had changed greatly. Hartwell sums up the development as follows:

Between 1820 and 1826 immigration and capital imports encouraged development in the colony: land holdings and tillage increased; agricultural innovations included timber-getting and viticulture; wool and whaling returns increased; manufactures including shipbuilding, steam mills, breweries and distilleries; imports increased markedly.

The year 1826, however, was the climax of the boom. In May 1826 news of the 1825 economic crisis in England reached the colony and "confidence was shaken, a foreign exchange crisis ensued, and a

2 Ibid., p.51.
3 Ibid., p.63.
deflationary policy was forced on the banks".\(^1\) The first unmistakable signs of the local depression appeared in the later part of 1827, and according to Butlin "the main factors were a liquidation crisis leading to a heavy fall in the prices of imported goods, a cut in capital imports ..., a fall in wool prices and a severe two-year drought".\(^2\)

The slump that followed the boom proved to be quite general in its impact on the economy, and though development in certain sectors of the economy was slowed down it appears possible that stimulus was given to some local manufactures. About this time certain local manufactured products probably captured more of the domestic market, if the local press is to be believed. The *Sydney Gazette* in September 1829 listed eighteen articles "which till this year or two were staple imports" but which it said were "fast being superseded by the Colonial manufacture, and will not pay the merchant much longer in freight and charges" - the items were soap, candles, boots, shoes, leather, butter, cheese, hams, salted pork, beef and tongues, beer, salt, rope, gigs, nails, furniture, and tobacco.\(^3\) Any protection afforded by the depression appears only temporary as imports rose again during the period of recovery from the slump. But there were gains. Valuable experience accrued in certain areas of manufacturing and local products received

\(^{1}\textit{Ibid.}, \text{p.65.}\)
\(^{2}\textit{S.J. Butlin, Foundations of the Australian Monetary System, 1788-1851 (Melbourne 1953), p.208.}\)
\(^{3}\textit{SG}, 22 September 1829.\)
more publicity.

The recovery of the economy from its first major set-back came slowly after 1830 with the break of the drought, increasing exports, and the reduced need to import grain. Late in 1831 the optimistic Sydney Gazette noted that the colony's commerce was once more "in healthful and active operation - her trade brisk - her manufactures increasing - her varied resources becoming better understood and more successfully developed".¹

The decade between 1830 and 1840 was a period of rapid economic growth in which immigration and capital imports promoted "a vast geographic expansion of the wool industry".² Sydney's population rose from 16,000 in 1833 to 35,000 in 1841 as both transportation and free immigration provided labour and men of capital and enterprise. T.A. Coghlan summed up the main developments in the 'thirties as follows:

The prosperous years from 1834 to 1838...attracted the attention of the British investors to Australian investments, and eager to obtain the ten per cent which was regarded as the normal rate of interest in Australia, they poured their money into all sorts of ventures. Assurance companies, loan and mortgage companies, and numerous other commercial enterprises were established and financed from the U.K.³

But most of the imported capital was still directed to primary industry, especially to grazing. As noted in the previous chapter, there was, however, an increasing flow to the colony of skilled workmen who set up

¹Editorial to SG, 5 November 1831 (emphasis added).
²S. J. Butlin, op.cit., p.225.
businesses and who brought both knowledge of techniques and capital
equipment to New South Wales. This was notable in the metal trades.

The early 'forties saw another slump, which slowed down economic
growth until the discovery of gold once more established a period of
prosperity. An editorial in the Sydney Morning Herald in November 1842
summed up the confidence which characterised the late 'thirties:

...from 1838 to 1840, we thought ourselves the most prosperous
community on the face of the globe; and through a considerable
portion of the year following, our correspondents in Britain
were of the same opinion. Consequently, the fervour of
speculation waxed more and more intense, until the storm burst
in sudden and overwhelming violence.¹

During the pastoral boom of the 'thirties Sydney expanded as it provided
the bases - wharves, shops and warehouses - for the squatters' advance.
Insurance companies and banks multiplied. The 'thirties also saw the
appearance of the first large public manufacturing company, the
Australian Gas Light Company.² But in the bubble flotations of 1840
other ambitious manufacturing ventures involving large capitals were
victims of the slump. In February 1840 the Sydney Herald published the
prospectus of a proposed joint-stock company called the Sydney Corn and
Flour Company, with a projected capital of £150,000 (in 3000 shares of
£50 each) with power to increase capital to £300,000. Though it was
claimed that four hundred shares were already subscribed for "by
influential parties", the financial crisis late in 1840 killed this

¹SMH, 11 November 1842 (editorial).
²See also SG, 4 March, 15 May 1834 for details of another proposed
manufacturing company.
project and others of a similar nature as well as "the rage for forming companies". A company was also to be formed for carrying on tanning "on a very extensive scale", but it never materialised.

Another effect of the depression was that imports fell heavily. Imports to the colony, including manufactured goods like clothing, clothing materials, hardware, and foodstuffs declined in value from about £3.0 m. in 1840 to £1.3 m. in 1842 when they were considerably less in value than in any former year since 1836. By far the greater proportion of imports were from England. In the two years 1838 to 1840 imports from England alone increased by 100 per cent, from £1.1 m. to £2.2 m., but from 1840 to 1842 decreased by about two-thirds to £0.8 m. An examination of the import figures from 1840 to 1846 reveals that imports of salted meat, leather, hides, and timber all decreased after 1840. Very probably some of the demand for such products was being met by increased local production. Furthermore, the patriotic Sydney Morning Herald, claimed the local manufactures increased from a little over 50 different commodities in 1840 to 133 by 1849. However, lacking any figures for the stocks of imported goods

1Sydney Herald, 24, 26 February 1840. See also letter to editors of Sydney Herald, signed "A", 24 November 1840, re the demise of the projected company.
2Sydney Herald, 29 January, 7 February 1840.
3Editorial in SMH, 11 November 1843. The import figures quoted included the "products of the fisheries" which were brought into the port of Sydney as an entrepot; in the period 1838-1842 they averaged about £100,000 per annum in value. The figures given in the Blue Books are slightly different, but the proportions are similar.
4SMH, 20 October 1849.
on hand and information on the level of consumption during the slump, it is impossible to say whether local manufacturing was stimulated during the periods of depression.

(i) Industries connected with building or construction

There was considerable activity in the building industry during this period as the elegant Macquarie town expanded into a city with a growing suburban perimeter. Sydney's increasing size and importance is shown in the removal from the central business area - for both practical and aesthetic reasons - of establishments such as dockyards, cattle markets, and noxious trade.¹ By 1829, according to a local newspaper, Sydney was the largest town south of the Tropic of Capricorn,² but to another observer it was still "a little spot, intersected by a parcel of formal streets, with boxes on each side".³ Other signs of civilization, however, reflected Sydney's growing sophistication as well as size. Water carts and street lighting made their first appearance in 1826,⁴ roads were being macadamized by early 1830,⁵ the first regular water supply (Busby's Bore) was completed in 1837, and in 1842 Sydney

¹The cattle market and dockyard were moved to new locations, south of the town proper (The Haymarket) and Darling Harbour respectively in the late 'twenties. Australian, 7 September 1827; 30 April 1828.
²SG, 20 October 1829.
³Australian, 24 February 1829.
⁴Australian, 22 November 1826; SG, 8 April 1826, 15 March 1827.
⁵SG, 27 February 1830.
was incorporated as a city. The number of houses in Sydney increased from almost 1800 in 1829 to almost 4600 in 1841, and as Table 1 shows there was considerable building activity in the 'forties paralleling Sydney's increase in population from 30,000 in 1841 to 54,000 in 1851.

**TABLE 1**

**HOUSES IN SYDNEY AND SUBURBS, 1841-51**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sydney</th>
<th>Suburbs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1841</td>
<td>4593</td>
<td>-</td>
<td>4,593</td>
</tr>
<tr>
<td>1846</td>
<td>7109</td>
<td>1846</td>
<td>8,824</td>
</tr>
<tr>
<td>1851</td>
<td>8583</td>
<td>2167</td>
<td>10,750</td>
</tr>
</tbody>
</table>

Source: Censuses of 1841, 1846, 1851

The number of trained architects in the colony increased, the speculative builder appeared on the scene and many substantial public buildings, houses, factories and shops were erected by both the government and private contractors. But despite the obvious activity in the building industry little can be said about the scale, the numbers employed and the stimulus that the industry supplied to other local manufactures. *Low's Sydney Directory* for 1847 lists 47 builders, 21 timber merchants, 25 plasterers and 10 plumbers. Employment figures

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1. HRA, 22, pp.362-3.
2. SG, 1 October 1829. The number of "inhabited houses" according to a census taken at the end of 1826 was 1500. *Australian*, 27 January 1827.
3. Joseph Fowles in his *Sydney in 1848* (Sydney 1848) gives the best contemporary account and illustrations of the types of buildings constructed in this period.
are entirely lacking apart from the fact that one builder engaged in
government contracts employed as many as 40 persons in the late 'thirties.\footnote{VPLC (1838), p.907.}
Furthermore, there are no statistics of the number of brickyards and
sawmills, and until 1849 no indication in the import inventories of
the amount, kind and value of building materials imported. In this year
the value of cement, glass, lead, paints, slates, nails and timber
imported amounted to about £30,000.\footnote{SRNSW, 1849.}

Building stone and clay for brickmaking and earthenware products
were available close to and in the city. It is of interest to note
that one firm that is today the largest manufacturer of vitreous
china in Australia had its beginnings in this period: in 1837 Enoch
Fowler (1807-1879) commenced his pottery works off Parramatta Road
(Broadway). This firm gradually expanded its products to include fire
bricks, tiles and drain pipes.\footnote{Illustrated Sydney News, 24 January 1880, p.10. Fowler's business rapidly expanded and moved to Glebe and then to a five-acre site at Camperdown.} On the other hand, timber had to be
sought further afield. Sawmills supplying the city's building trade
were mainly located around Lane Cove, Cowan (on the Hawkesbury) and the
Illawarra district in the south.\footnote{Sydney Herald, 18 July 1831, 8 January 1840; Tegg's Pocket Almanac, 1838 (Sydney 1838), p.50; PMR for 1841.} Steam power was applied to sawmilling
in 1831 and after this date sawmills - often in association with a flour
mill - were established on Darling Harbour. Although more buildings
were being constructed of brick and stone, builders were making more use
of imported materials in this period and burnt clay tiles and split wood shingles were giving way to imported slates and corrugated iron.\textsuperscript{1}

As one would expect, the demands of the building industry stimulated the woodworking and metal trades. Iron columns and balcony railings were being manufactured from imported iron as early as 1832.\textsuperscript{2} Government regulations and standards regulating for the building industry in the 'thirties (stipulating that all houses must be provided with gutters for proper drainage) led to the setting up of numerous tin and ironwork shops which specialised in making downpipes and guttering from imported tin.\textsuperscript{3} By 1850 a sizeable number of persons were engaged in trades and manufactures connected with building and construction.

(ii) Industries connected with food and drink

The main developments in the flour milling industry in the period 1822-50 were a large increase in the number of mills, decentralization of operations, increased use of steam power, and increase in the size of flour mills in Sydney.

The number of mills in New South Wales rose from about twenty in 1821 to over 140 by 1851, in pace with the 600 per cent increase in

\textsuperscript{1}M. Herman, \textit{The Early Australian Architects and their Work} (Sydney 1954), p.138.
\textsuperscript{2}\textit{Sydney Herald}, 13 December 1832, 12 September 1833.
\textsuperscript{3}\textit{Sydney Herald}, 19 December 1833; \textit{SG}, 2 August 1834; 23 April, 20 June 1835; 19 November 1836; 4 December 1838.
population in the same period. The building of mills went on apace throughout the 1820's until the demand for sufficient milling facilities was beginning to be satisfied. Governor Darling was able to report to the home authorities in 1829 that

the Wind, Water, Draught and Steam Mills, which are fast increasing in number, may be expected shortly to furnish efficacious means of reducing the Wheat into Flour with sufficient promptitude to prevent the heavy loss hitherto sustained by attacks of the Weavil on the former...in an unground state.¹

With the expansion of settlement it was already evident by 1821 that flour was being milled at the point of production rather than at the point of consumption. This meant that many mills were built in the newer agricultural districts, north, south and west of Sydney. The number of flour mills in Sydney remained practically constant during the years 1831-51 (although their size in many cases increased), while over 100 mills were established in the new agricultural areas (including 90 per cent of all the new steam mills established) in the same period. (Table 2).

The number of mills in the interior increased from 48 in 1831 to 130 in 1851, and the number of steam mills in the same period rose from two to 58.² Throughout the thirty-year period there was no appreciable change in the number of windmills in the interior, but both water and horse mills showed a general increase. Up to 1840,

¹HRA, 14, p.138.
TABLE 2

FLOUR MILLS IN N.S.W. AND THE SYDNEY DISTRICT 1821-51

<table>
<thead>
<tr>
<th>Year</th>
<th>Steam NSW</th>
<th>Syd.</th>
<th>Water NSW</th>
<th>Syd.</th>
<th>Wind NSW</th>
<th>Syd.</th>
<th>Horse NSW</th>
<th>Syd.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1821</td>
<td>1</td>
<td>1</td>
<td>++</td>
<td>2</td>
<td>++</td>
<td>8</td>
<td>++</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td>1826</td>
<td>3</td>
<td>2</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>0</td>
<td>++</td>
</tr>
<tr>
<td>1831</td>
<td>5</td>
<td>4</td>
<td>19</td>
<td>3</td>
<td>27</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>61</td>
</tr>
<tr>
<td>1836</td>
<td>8</td>
<td>6</td>
<td>24</td>
<td>2</td>
<td>22</td>
<td>7</td>
<td>12</td>
<td>0</td>
<td>66</td>
</tr>
<tr>
<td>1841</td>
<td>29</td>
<td>7</td>
<td>21</td>
<td>2</td>
<td>27</td>
<td>7</td>
<td>8</td>
<td>0</td>
<td>85</td>
</tr>
<tr>
<td>1846</td>
<td>45</td>
<td>9</td>
<td>30</td>
<td>2</td>
<td>28</td>
<td>5</td>
<td>28</td>
<td>0</td>
<td>131</td>
</tr>
<tr>
<td>1851</td>
<td>68</td>
<td>9</td>
<td>33</td>
<td>1</td>
<td>24</td>
<td>5</td>
<td>20</td>
<td>0</td>
<td>145</td>
</tr>
</tbody>
</table>

Source: Blue Books, 1831-46; PMR for Blue Books, 1851.
This table excludes the Port Phillip (Victoria) and Moreton Bay (Queensland) districts.

++ Exact number not known.

however, wind, water and horse mills predominated. Russell writing in 1839 noted that

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1 The Blue Book return, headed 'Steam Mills for Grinding and Dressing Grain' was not the number of separate mills, but the number of steam engines used for this purpose. In the country areas the number of steam engines and the number of milling establishments could for all practical purposes be taken as the same; but in Sydney, where the mills were larger they cannot always be treated this way. For example, the four steammills in the 1831 return represent three separate establishments; the eight in the 1840 return represent only five.
Flour mills in the bush are generally driven by water, those more extensive and better situated are driven by the wind or steam power.\(^1\)

But in the 'forties steam mills began to eclipse each of the other classes in number. This was determined by certain economic factors which will be mentioned later, and by the fact that mechanical engineering had developed to a fair degree of proficiency.

After the establishment of the first steam mill outside of Sydney in 1826, others followed slowly. The Darling Mills at Parramatta was the only steam mill in the interior until a second was established at Maitland in 1834. After this date others were established at Windsor the following year,\(^2\) Berrima (1837),\(^3\) Goulburn (1838),\(^4\) and at Illawarra (1839).\(^5\) By 1841 there were at least twelve steam mills outside the County of Cumberland and by 1851 there were about forty-four. Nearer to Sydney in 1841 there was one each at Liverpool, Windsor and Portland Head (on the Hawkesbury) and four in Parramatta. Two new steam mills, Byrnes' and Harvey's were erected at Parramatta on the south side of the river in 1840.\(^6\) In the same year Blackett's Collingwood Steam Mill was opened on the left bank of the Georges River at Liverpool.\(^7\)

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3. This was the Oldbury Steam Mill, *SG*, 18 March 1837.
6. Sydney Herald, 29 May 1840 (supplement); *PMR* for District of Parramatta, 1840. Harvey's mill was erected at the foot of the present Charles Street, Byrnes' was east of the Macarthur Street bridge; both were intended to be used as saw-mills as well.
7. Sydney Herald, 10 August 1840. This mill is now (1969) a woolscouring establishment.
A feature of flour milling in the interior was the number of small mills located on properties, as distinct from the larger ones in the towns, and the use of horse or bullock-driven devices. The number of horse mills in use fluctuated in number more than the other types of mill from year to year, mainly because they were usually temporary expedients, small and usually privately owned; their number never at any time exceeded 25 per cent of the total return of mills in the colony. These makeshift devices were of many different designs: Russell (1840) describes one:

A large circular floor was placed on a pivot, with a slight inclination; into this round house were driven three wild bullocks, who were forced from the declination to work on the tread mill principle till let out to admit others, after being pretty well tamed.1

As well as horse-driven mills, hand or portable steel mills were still much used on out-stations in the country.2 Waugh (1836) observed that

Every farm keeps several steel mills like a pepper mill, for grinding wheat; the men grind their own mess, and then sift it with a common sieve.3

In 1831 fifty-seven such devices were returned for the Illawarra district alone.4

Decentralization of grain milling was inevitable for a number of reasons. Apart from the fact that there was a growing local market in

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2J.D. Lang, An Historical and Statistical Account of New South Wales (London 1834), vol.1, p.348; SMH, 20 August 1844.
3D.L. Waugh, op.cit., p.36.
4PMR for 1831.
the new towns and villages in the interior, distances from the point of production to the point of consumption increased as settlement expanded; and if water transport to Sydney was not available, the cost of transport overland was often prohibitive. James Atkinson, the agriculturist, claimed in 1829 that the cost of transporting a bushel of wheat to Sydney from Bathurst or the Argyle district (around Goulburn) exceeded its cost of production on the farm.¹ Moreover, there was the perennial problem of grain storage and its damage by pest. In 1827, Sir John Jamison, president of the Agricultural and Horticultural Society, once more expressed the hope that

country proprietors will consider the advantages of erecting windmills on suitable elevated situations to be found on most estates. By much convenience they could reduce their corn early in the season to the safe keeping and portable state of flow.²

But the decentralization of grain milling was affected not so much by the erection of more water and windmills in the interior as by the fact that steam power, less demanding in site requirements, had become popular and steam engines and parts could be produced locally. In June 1840 there were no less than a dozen steam engines being built in Sydney for flour mills in the interior.³

The effects and advantages of decentralization became evident soon after the establishment of the first steam mill outside Sydney in 1826.

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¹ J. Atkinson, On the Expediency and Necessity of Encouraging Distilling and Brewing (Sydney 1829), 2nd ed., p.5.
² Presidential Address reported in Australian, 21 February 1827.
³ Sydney Herald, 1 June 1840 (supplement).
Figure 4.

Darling Harbour
Industrial Location
1850

Pyrnom Bay

Engineering Works

Flour Mill

GAS WORKS

Flour Mill

Morgates Place

Patent Slip

Struth's Wharf

Market Wharf

Albion Flour Mill

Harbour

Darling

Woollen Mill

Saw Mills

Barker's Flour Mill

Barker's Wharf

Barker's Mill

Barker's Flour Mill

Barker's Wharf

Barker's Mill

Barker's Flour Mill
In 1828 the *Sydney Gazette* observed that

The Darling Mills, which are so eligibly adapted for business... from their superior and commanding situation, are daily mixing into repute with the settlers, who, instead of coming all the way to the capital, find it prudent to abide at these mills, dispose of their grain, and in return take goods of all descriptions, as cheap as they are obtainable at the first houses in Town.¹

However, it was not until about 1840 that the trend towards the decentralization of grain milling became more pronounced; by this time up-country settlers were finding that jobbing in the Sydney Grain Market...rendered it more profitable for them to grind their own wheat into flour, than to sell their wheat, and purchase flour in return.²

This explains why the number of mills in New South Wales doubled in the period 1839-51. This period also saw a four-fold increase in the number of steam flour mills. Of the twenty-seven steam mills in New South Wales in 1841, one-half were outside the County of Cumberland. Of the sixty-eight steam mills in 1851, forty-eight, or nearly three-quarters, were outside the County.

Another very important reason for the increase of mills in the interior in the 'forties was that settlers were beginning to realise that to issue flour was cheaper than wheat as rations to shepherds and other pastoral workers. By milling grain on their head stations and therefore retaining the bran and siftings for pigs, horses, and poultry,

¹ *SG*, 19 March 1828.
² *Sydney Herald*, 1 June 1840 (supplement).
they found that more rations were obtained per bushel of wheat and that the cost of maintaining numerous steel handmills was saved. It was estimated in 1844 that efficient milling of a bushel of wheat would yield fifty pounds of flour or five rations. If, on the other hand, the wheat were given to the labourers and handmilled, only forty pounds of flour would be obtained for every sixty pounds of wheat, and the bran lost. Taking into consideration that the cost of milling was 1s. per bushel and that the annual upkeep cost of a handmill was 20s., this meant an annual saving of the cost of producing a hundred rations.¹

Despite the proliferation of flour mills in the interior, Sydney still remained an important milling centre and the largest mills were located here. (Fig. 4) A second steam flour mill was erected on Darling Harbour in 1825,² and in 1840 this mill, Barker and Hallen's, contained two steam engines: one of 14 h.p. powering two pair of millstones, and one of 30 h.p. driving four pair of stones as well as three dressing and one smut machine.³ (Plate V) The original steam mill, Dickson's, was enlarged during this period and by 1840 it consisted of a 16 h.p. engine, two pair of stones, two dressing and two smut machines, and two grain elevators. Two new steam flour mills were built on Darling Harbour in the 'thirties: Hughes and Hoskings' Albion mills at the foot of Market Street in 1833⁴ (Fig. 4) and Girard's at the

¹SMH, 20 August 1844.
²Australian, 29 December 1825.
³PMR for 1840.
⁴Sydney Herald, 14 January 1833.
PLATE V - BARKER AND HALLENS' FLOUR MILL IN THE 1830's
(From an engraved invoice in the G.K. Mann Papers, Mitchell Library, Sydney.)

PLATE VI - TOOTH'S BREWERY IN 1847
(From an advertisement in Low's Sydney Directory for 1847.)
The Albion Mills were large by contemporary standards, consisting of six pair of stones powered by engines of 36 and 14 h.p. When destroyed by fire in 1841 the damage to buildings alone (though no doubt exaggerated) was estimated at £40,000. Girard's, on the other hand, was smaller but powered by a 15 h.p. steam engine it was capable of grinding three to four thousand bushels of wheat per week. Attached to Girard's mill were a saw-mill and a bakehouse for the production of ship's biscuit. The only other important steam flour mill which operated in Sydney in this period was located at the Brisbane Distillery in Parramatta Road. (Fig. 5) Distilling had proved to be a precarious business so the proprietor of the distillery, Robert Cooper, diversified his manufacturing ventures by erecting a flour and woollen mill next to his distillery. This flour mill began operations about 1829; with both engines at work it had a capacity of about 4000 bushels per week.

The steam engines used to power the mills were at first small and unreliable machines but they grew larger in size and greater in efficiency as time went on. The first steam flour mills were generally provided with an alternative source of power - usually a horse-mill -

1 SG, 24 July 1834.
2 PMR for 1840.
3 SG, 6 March 1841.
4 SG, 24 July 1834; 26 December 1839.
5 SG, 21 February 1829; Australian, 30 June 1829.
Figure 5.

UPPER SYDNEY
INDUSTRIAL LOCATION
IN THE 1840's
BASED ON WELLS' MAP c.1842

MAJOR BUILT UP AREAS
RECLAIMED AREAS TODAY
SUBDIVISIONS
C CEMETARY

Figure 5.
in order to safeguard against unexpected and expensive breakdowns. But in 1831 mills had increased to such a size that in that year both Barker's and Dickson's mills added extra boilers that enabled them to continue operations while repairs were being carried out.¹ Most of the engines used in flour mills up to 1851 were either of the beam or table type and a considerable number were manufactured locally in the foundries of Blanch, Bourne, Struth and Russell.² By 1851 flour mills were amongst the largest of manufacturing firms and each contained several steam engines.

Steam power gradually assumed the role of the main motive force for the flour milling industry and at the same time the other motive forces gradually diminished in their application. The number of windmills in Sydney rose from eight in 1821 to ten a decade later. The number gradually fell to five by 1851 although new mills were built during this period to replace those that fell into disrepair. Sydney experienced its last windmill building phase in the late 'twenties and early 'thirties when a number of mills were built along the road to South Head on the Darlinghurst ridge in the vicinity of present-day Kings Cross; six mills had been erected here by 1828.³ Millers were forced to seek such sites further afield as most of the suitable elevated and waterfront sites in the town were occupied or built up by the early 'twenties. Increasing

¹Sydney Herald, 19 December 1831.
²N. Selfe, loc.cit., p.xliv.
³"Map shewing the Vacant Land East of Woolloomooloo, May 1828", NSW A, S.734c.
land values and public opposition to their construction in the town were also factors. Nevertheless the days of the windmill, like those of the watermill, were numbered as the more efficient and reliable steam engine, the vanguard of the industrial revolution, became more widely used.

Only one new water flour mill was erected on the swamp streams flowing into Botany Bay. In 1825 the enterprising Simeon Lord had built a flour mill at Mud Bank below his woollen mill on Botany Bay on a site where vessels of up to 100 tons burden could approach within a quarter of a mile of the mill. This mill had facilities for storing between three and four thousand bushels of grain. Meanwhile, watermills declined in importance and their dams and sites were put to other uses. In 1827 the Lachlan Mill was being converted into a woollen manufactory, and later, like the Waterloo Mills, was converted into a wool-washing establishment. In 1831 there were three watermills in Sydney; in 1840 there were two, and by 1851 there was only one. By this time wool-washing had completely superseded flour milling as the main industrial activity in the Waterloo-Botany area.

Brewing also flourished in the new agricultural settlements in the interior, because like flour milling, it was an industry based on the

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1 SG, 9 February 1827.  
2 Australian, 31 March, 23 June 1825.  
3 Australian, 21 September 1827.  
4 PMRs for 1831, 1840, 1851.
produce of the land. But besides being a natural development of the spread of settlement, other factors contributed to the expansion and improvement of the industry. The demand for beer as a cheap beverage increased as the population grew and government policy favoured the establishment of breweries as a market for surplus grain and perhaps to lessen the consumption of spirits. James Atkinson wrote in 1829 that "as beer is much wanted for domestic consumption, the practice of brewing, it is probable, will soon become very common in the interior";¹ and in the following year he built a brewery on his property at Oldbury (near Berrima), it was anticipated that his example would be followed at Bathurst and other places.² In 1831 there was only one brewery in operation outside Sydney (at Bathurst) but after 1843 the number increased rapidly so that by 1851 there were sixteen.

Sydney, however, remained the most important brewing centre. The number of breweries there rose from five in the late 'twenties to a peak of eight in the early 'thirties, falling to two in 1851. The decline in the number of breweries in Sydney was compensated by the increased capacity and output of the surviving breweries which were much larger than any of their country counterparts.

Of the six new breweries established in the Macquarie period, only four carried on operations for one or more years in the period

¹J. Atkinson, op.cit., p.23.
Clarkson's, established in 1810, on the corner of Hunter and Elizabeth Streets, was still functioning in 1839; Lawrence's, established in 1813 and relocated on the corner of Pitt and Market Streets, appears to have closed about 1834; the Wellington Brewery, established in 1820, on the eastern side of George Street, south of Barrack Street, continued operations throughout the 'twenties, and closed about 1834; while the fourth, Middleton's Nelson Brewery in Tank (Spring) and O'Connell Streets, ceased operations in 1829.

Three large new breweries were built in Sydney in the 'twenties. The first of these was the Australian Brewery which was located on the corner of Bathurst and George Streets in 1824. This brewery developed a large country trade and sent beer by its own conveyance to the interior, particularly to Windsor, Pitt Town, Wilberforce and the lower parts of the Hawkesbury. Despite powerful competition it continued for over thirty years when it was taken over by Tooth and Company.

The second, the largest in Sydney in the 'twenties and for some years after, was Samuel Terry's Albion Brewery, located in Elizabeth Street opposite the then new burial ground (i.e. the old Devonshire Street cemetery). This began operations late in 1828 and advertised "good malt Beer"

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1 Gregory Blaxland's brewery at Brush Farm and Byrnes' on the corner of Pitt and King Streets were discontinued.
2 PMR for 1834; J. Webster, op.cit., p.85.
3 SG, 17 July 1823, 1 January, 4 March 1824; Monitor, 6 September 1826, 23 March 1827; SG, 5 September 1828; Monitor, 6 September 1828.
4 SG, 14 November 1825; Monitor, 26 May 1826, 22 November 1828; Australian, 16 January 1829.
5 Australian, 14 October 1824.
7 Sydney Monitor, 15 November 1828, p.1393.
at £3.10.0 stg. per hogshead,\(^1\) by 1830 it was exporting beer to Launceston in Van Diemen's Land.\(^2\) It continued operations until the 'fifties when it was converted into a soap and candle factory. In the 'seventies, it was taken over by the firm of Toohey's which still maintains a large brewery on the site. The third of the larger breweries was Dickson and Mackie's established in 1828 at the foot of Goulburn Street. This establishment, part of the Dickson mills complex, was the first to use steam power.\(^3\) In all, no fewer than twelve different breweries were in operation at one time or another in Sydney in the 'twenties.

"Colonial beer has of late become extensively brewed and sold in the Colony, taking the precedence of London Porter" remarked the *Australian* in 1828,\(^4\) and in the following year the average weekly consumption was stated as upwards of 100 hogsheads (5250 imp. gals.) per week.\(^5\) Actual production figures published in the *Australian* in 1828 support this figure and give some indication of the size of breweries at this time. The average monthly output of six of the breweries in operation was estimated about 465 hogsheads, and of this the Wellington Brewery produced 130 hogsheads per month, the Australian 115, the Woolpack 100, the New Brewery 60, and the Nelson and Gas Light 30 hogsheads each.\(^6\)

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\(^1\) *SG*, 17 November 1828.
\(^2\) *SG*, 19 January 1830.
\(^3\) *SG*, 15 August 1828.
\(^4\) *Australian*, 20 June 1828.
\(^5\) Presidential Address to the Agricultural and Horticultural Society of New South Wales, Part IV, in *SG*, 18 October 1830.
\(^6\) *Australian*, 20 June 1828.
During the 'thirties about twelve different breweries operated at one time or other, but no more than eight were in production in any one year. Eight breweries operated in the years 1832-5 but after this the number gradually declined as the smaller were finding it hard to compete with the larger. Three of those operating in the 'thirties were legacies from the Macquarie period and two others, the Albion and the Australian, continued operations uninterrupted throughout the 'thirties.

The police magistrates' returns for the Blue Books, which are available in their entirety only for the 'thirties, suggest that very few new breweries were built in this decade and indicate that most of the smaller concerns changed name and management often and only worked for short periods. New breweries, however, were built, the largest of which was Newnham and Tooth's Kent Brewery which opened in 1835 on a four and a half acre site on Parramatta Road (Broadway) and still operates today on the same site. (See Plate VI & Fig.5)

The number of breweries fell from six in 1841 to four in the years 1843-7. In 1851 only two were operating: Robert and Edwin Tooth's Kent, and John Wright's Australian Brewery on Brickfield Hill. Thus by 1851 large and more efficient establishments had completely taken over.

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1SG, 24 September 1835.
2The four breweries were Wright's, Tooth's, Thompson's, and Burton's. See PMR for 1845 and 1846.
3Ford's Sydney Commercial Directory for the Year 1851 (Sydney 1851), pp.141, 154.
Indeed with the exception of the above-mentioned three large firms, relatively few really new premises were erected during the whole thirty-year period; in general the newer brewing firms that made their appearance from time to time were usually located in premises built in the Macquarie era or before. Judging by contemporary descriptions and illustrations the Australian, Albion and Kent breweries were large concerns,¹ the rest were very much smaller. Details of the size of the smaller ones are generally lacking, but some indication of their size is conveyed in sale or lease notices of property: one was advertised for sale for £4000, or to let for £200 per annum,² while another simply consisted of a shed forty feet by sixteen.³

Colonial beer - often brewed from sugar in the absence of malt - had to face severe competition from the imported article which, although much dearer, was for a long time imported in large quantities⁴ and was strongly preferred to the colonial product. In the 'twenties, beer brewed from malt ranged from 1s. to 2s. per gallon and from £2.15.0 to £4.10.0 per hogshead, with "potent ales" rising to £6 per hogshead.⁵

¹Low's Sydney Directory for 1847 (Sydney 1847) contains an engraving of the Kent Brewery. There are also extant contemporary illustrations of the Albion and Australian breweries.
²SG, 20 May 1824.
³Sydney Herald, 30 August 1832.
⁵Prices taken from the various trade circulars published in the Sydney newspapers.
In 1828, when the colonial product ranged from £3.5.0 to £4 per hogshead, London porter was said to cost £12 per cask and sold at 6s.8d. per gallon, compared with the colonial product priced at 2s. per gallon.\footnote{Australian, 16 July 1828.}

In 1844 colonial ale was selling at half the price of the imported product.\footnote{SMH, 23 July 1844.} From the late 'twenties the local product appeared to capture more of the domestic market, but its quality varied greatly as many of the smaller breweries produced poor quality beer brewed from sugar.\footnote{SG, 30 July 1829. See also editorial in SG, 21 September 1830.}

However, this problem of malt versus sugar was overcome in the 'thirties and 'forties and the superiority of the malt product was demonstrated by the disappearance of the smaller breweries.\footnote{Half the malt used was imported from England or the United States, the rest mainly came from Van Diemen's Land. SMH, 23 July 1844.}

By the 'forties the experimental and amateur stage of the brewing industry could be said to have passed as brewers were more skilled, the malting processes in a hot climate fairly well understood, and the general quality of the beer improved.

A considerable amount of both legalised and illicit distillation, but probably more of the latter, took place in and around Sydney during the period.\footnote{Only one other licensed distillery operated in the interior during this period, Japhet White's, at Bathurst in 1828. For evidence that illicit distillation seems to have been freely indulged in see SMH, 15 August 1843.} Two licensed distilleries operated intermittently:
Robert Cooper's Brisbane Distillery on Parramatta Road (Broadway) and Underwood's, which later became Abercrombie and Company's Glenmore Distillery in Paddington. Both were located on small streams on the outskirts of the town and both were large establishments involving considerable capital investment. The Brisbane Distillery operated during most of the period, but the other concern worked only in 1824-5 and was out of action until 1837 when it was taken over by Abercrombie and Company.

Cooper's Brisbane Distillery, founded in 1823, was one of the largest industrial establishments of the time. (Fig. 5) Many additions were made to it in succeeding years as the original distillery became a complex of various types of manufacturing ventures. Distilling was a precarious industry, production depending on the fluctuating market price of grain, so distillers naturally looked for alternative sources of income. In 1829 the distillery was said to have cost upwards of £30,000. It contained two 1200 gallon stills, a 1700 gallon boiler and two steam engines which could grind 4000 bushels of grain and produce 2000 gallons of spirits per week. In 1833 the Brisbane Mills complex

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1 *Monitor*, 20 September 1827, p.655. For an idea of the scale and layout of these early distilleries see "Plan and Section of the Ground Floor and Still House of the Glenmore Distillery", enclosure in Robert Abercrombie to Colonial Secretary, 20 June 1846. NSWA [4/2765].

2 SG, 22 May 1823.

3 Distilling suffered from various other government interferences. These are dealt with briefly in Part II, Chapter 3 "The Role of the Government".

4 *Australian*, 30 June 1829.
consisted of flour mill, bakehouse, malt house, brewery, cloth mill and smith's shop as well as the distillery - the whole outlay estimated at £50,000.¹

Between the years 1825 and 1838 the Brisbane Distillery produced about 140,000 gallons of spirit, 85,000 gallons of which were from grain and the remainder from sugar. The distillery did not work for more than half the year and the spirit distilled was sometimes called gin and sometimes raw spirit. Occasionally spirits of wine 40 to 60 per cent over proof were distilled.² In 1839, when distillation from sugar was again carried out, the distillery averaged 900 gallons per week and the spirit was described as rum.³ Production at the distillery gradually declined until, in 1851, it accounted for no more than 2500 gallons out of a total of 42,000 gallons of spirits distilled.⁴

The government policy of establishing licensed distilleries in order to stimulate agriculture and to prevent illicit distillation was a failure. According to Dunsdorfs⁵ this fact had been demonstrated to officialdom by 1833 because: (a) the prices paid by the distiller were no inducement to farmers to extend their acreages under wheat and other grains; (b) illicit distillation operated extensively anyway; and (c),

¹Sydney Herald, 18 March 1833.
²Minutes of Evidence taken before the Committee on Colonial Distillation; evidence of J.M. Bates, VPLC (1839), 1, (n.p.).
³Ibid., Eight gallons of spirits were produced from 100 lbs of sugar, and 2½ gallons from one bushel of barley.
⁴VPLC (1852), 2, p.13 of statistics.
the quantity of colonial spirits produced was insignificant compared with the quantity of imported spirits. Six years later the failure of licensed distilling to assist agriculture was noted in the Report from the Committee on Colonial Distillation which stated that "after fourteen years' trial, the support actually given by the Distilleries to the Agriculturist, has been so limited as scarcely to deserve consideration". The Report went on to state that even on "the most favourable supposition" only a little over 100,000 gallons of spirits had been distilled from just over 50,000 bushels of grain, yielding "an annual average of sixteen years of only £812.16.10½d. to the benefit of agriculture". So great was the failure to achieve the initial aims of the scheme that even the entire prohibition of distillation was proposed. But although from the standpoint of the wheat growing industry the distillery scheme was, and remained, unsuccessful, the manufacture of spirits in its licensed and unlicensed forms continued through the 'forties because demand was very great. The consumption of spirituous liquors in Sydney between 1843 and 1848 was 1.52 gallons per head of population per annum which exceeded by ½ gallon per head the annual consumption of spirits in England and Ireland - though not Scotland!

1 VPLC (1839), 1, (n.p.).
2 Ibid., Appendix to Report on Colonial Distillation, p.5.
3 For a discussion of the reasons see R. Cooper, Appeal of Mr. Robert Cooper against the prohibition of Colonial Distillation (Sydney 1839).
4 SMH, 15 November 1849 (editorial).
Two sugar refineries were built in the 1840s. The first and largest commenced operations in 1842 and was built at Canterbury on the Cook's River six miles from Sydney. (Fig. 6) Here, Robert Campbell, a Sydney merchant, had exchanged sixty acres of land, the refinery site, in return for shares to the value of £1200 in the Australasian Sugar Company.\(^1\) The works were said to have cost £30,000; they consisted of a four-storey white sandstone building one hundred feet long, sixty feet wide, and sixty feet high, capable of refining 50 to 60 tons of cane sugar per week.\(^2\) Raw sugar from the Philippines and coal from Newcastle were landed at Sydney and conveyed by road to the refinery.\(^3\) The other refinery, Bowden's, was located in the town on the corner of Pitt and Liverpool Streets and began working in 1847. Two years later it was taken over by the Australasian Sugar Company which from 1849 operated both establishments.\(^4\) Production figures are lacking for the initial years, but in the period 1849-51, 8000 tons of sugar were refined.\(^5\)

\(^1\)J. Jervis, *A History of the Municipality of Canterbury* (Sydney 1951), p.18. The choice of Canterbury as the site, apart from obviously satisfying Campbell, seems to have been a curious one. The site possessed adequate supplies of water and timber, but there were no other obvious advantages as it was inaccessible by water, unpopulated, and special roads had to be built.

\(^2\)SG, 30 September 1841. In 1866, when the refinery had been out of use and repair for eleven years, the building was valued at £2500. See Reports of the Colonial Architect, etc. 1862, 1866 *NSWA* [2/637]. The original building is still standing and is part of a meat processing plant.

\(^3\)SG, 9 September 1841, 13 August 1842.

\(^4\)SMH, 25 August 1849.

\(^5\)SRNSW, 1851. The Australasian Sugar Company ceased operations in 1854 and a new company, the Colonial Sugar Refining Co. was formed in January 1855. On the formation of the C.S.R. Co. the Canterbury works were closed and the refinery moved to the town.
Figure 6.

The Village of Canterbury, 1854

From the original in N.S.W. State Archives
The treatment and preservation of meat for both domestic consumption and export was begun on an experimental basis in the 'thirties. The possibility of exporting salted provisions to such places as India, Mauritius and the Cape of Good Hope was first entertained in 1830, but one of the main difficulties lay in the supply and quality of the salt to be used. By 1828 Blaxland's salt pans on the Parramatta River, which continued operations throughout this period, had produced over 1000 tons of salt or an average of one ton per week since they commenced in 1807. However, there was such a preference for the purer imported product that in 1830 a government tender for the provision of salted meat for export specified that Liverpool salt was to be used.

Robert Cooper and Daniel Levey established a slaughter house and salting works on their estate at Point Piper in 1832, undertaking to fulfil large government contracts for salted beef. By 1834 this establishment employed about fifty men. In this year another large meat salting works was opened at Prospect, west of Parramatta, and the practice seems to have become widespread in New South Wales by the mid-'thirties. In 1833 a business was established in Hunter Street for

1 *Australian*, 17 March 1830.
2 *HRA*, 14, p.129.
3 *Australian*, 28 March 1828. Salt was also manufactured at Newcastle in the 'twenties and brought from Kangaroo Island S.A. *HRA*, 14, p.4; *Sydney Herald*, 20 June 1831.
4 *SG*, 5 June 1830.
5 *Sydney Herald*, 5 July 1832. Their first contract was to supply the government with 120 tons of salt beef.
6 *SG*, 28 June 1834. At this time Cooper and Levey had contracted to supply the government with 100 tons of salt beef.
7 See, for example, news item in *Sydney Herald*, 17 June 1833 (supplement).
the purpose of commencing "the manufacture of provisions of all description, hermetically sealed".\(^1\) Later in the same year Messrs H. and A. Hollinshed of upper Kent Street announced that they had succeeded in manufacturing pyroligneous acid from native timbers and advertised for sale "Hermetically sealed Meat, Soup,...and Pyroligniated Beef".\(^2\) In the early 'forties salted tongues, hams, as well as gelatine were occasionally produced as by-products from boiling-down operations then extensively carried out for tallow. J.O. Balfour writing in 1845 observed that

Salting beef was generally resorted to by the colonists in 1842, and most of the principal stockholders gave it their attention.\(^3\)

Meat preserving was an established industry by 1850, by which time the prejudice against colonial provisions was disappearing and an expanding market was being found in Britain, the United States, and the South Sea Islands.\(^4\) The development of the industry is indicated by the fact that in 1840 over £8000 was spent on importing Irish beef and pork, but, in 1850, 5000 cases of preserved meat valued at £5000 and over 500 tons of salted beef, tongues, hams, and bacon valued at £10,000 were exported from New South Wales to Great Britain and

\(^1\) Sydney Herald, 4 February 1833.
\(^2\) Sydney Herald, 29 August 1833.
\(^3\) J.O. Balfour, A Sketch of New South Wales (London 1845), p.100.
By 1850 the industries connected with the production of food and drink in Sydney employed a moderate number of people; the emergence of the factory system can be seen in the case of the larger breweries and flour mills, and a firm foundation had been laid for subsequent developments in this category of manufactures in the second half of the nineteenth century.

(iii) **Textiles and clothing**

There were important developments in the manufacture of textiles and clothing. As in the case of the flour milling industry there were changes in the number, size, and location of woollen manufactories in New South Wales. The number of woollen mills decreased from thirteen in the early 'thirties to five in 1851 (Table 3). Rather than remaining

<table>
<thead>
<tr>
<th>Year</th>
<th>Sydney</th>
<th>Interior</th>
<th>Total in NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1831</td>
<td>5</td>
<td>8</td>
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<tr>
<td>1836</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1841</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1846</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>1851</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Figure 7.
small concerns as at places like Windsor and Bathurst, the country mills increased in size; by the 'forties they were located at Penrith and Parramatta near Sydney, at Newcastle and Muswellbrook in the Hunter Valley and at Orange in the West. Large woollen mills were built at Penrith in 1842 and Parramatta in 1846. The Penrith mill erected by the pastoralist Sir John Jamison on his "Regentville" estate used wool from Jamison's flocks and employed Scottish carders and weavers.¹ James and William Byrnes' mill at Parramatta in 1847 employed about forty persons in the manufacture of a variety of cloths including the first tartans in the colony.²

Sydney, although still an important woollen milling centre, had lost its earlier predominance by the late 'forties when its production was less than half the New South Wales total of over 160,000 yards in the period 1848-51, the first period for which statistics are available. The decline in the number of mills in Sydney from seven in 1833 to one in 1851 was due to the disappearance of very small shops containing as few as two looms.³ Throughout the 'thirties and 'forties the overall production of cloth appears to have increased. (Table 4).

¹ Jamison Papers, vol.4, p.91.
² VPLA (1862), 5, p.1047.
³ These smaller manufactories, like dyeing, scouring, finishing and flax dressing businesses, were dispersed throughout the town: Belbridges "factory" which contained two looms in 1832-3 was located on Parramatta Rd., Cunningham's in George Street in the 'thirties contained three pairs of looms, a carding engine and a spinning billy. PMR for 1832, 1833 1840.
<table>
<thead>
<tr>
<th></th>
<th>1848</th>
<th>1849</th>
<th>1850</th>
<th>1851</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of mills</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Production (yds)</td>
<td>67,200</td>
<td>72,800</td>
<td>75,200</td>
<td>75,000</td>
</tr>
</tbody>
</table>

Source: PMR for 1848-51.

Simeon Lord's mill at Botany, established in 1815-16, continued operations throughout the period. (Fig. 7) In 1829 "the Whitney of New South Wales" improved and extended his mill by the addition of a new double carding engine which enabled him to supply large quantities of cloth and blankets at reduced prices. Lord employed aboriginal and convict boys and by 1840 his mill, which was a large wooden structure, employed about sixty persons. (Plate VII) As well as Lord's mill three other relatively large mills were built or opened. Robert Cooper began the manufacture of cloth in part of the Brisbane Mills-Distillery complex in the early 'thirties. In 1840 the mill contained a carding machine, a scribbling billy, two spinning jennies, and eight

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1. Sydney Monitor, 10 October 1829.
4. Sydney Herald, 1 October 1832; SG, 16 October 1830, 21 January 1833.
PLATE VII - LORD'S WOOLLEN MILL AT BOTANY, 1838.
(Woodcut engraving from J. Maclehose, The Picture of New South Wales...for 1838, Sydney, 1838).

PLATE VIII - STRUTH'S FOUNDRY IN 1847
(From an advertisement in Low's Sydney Directory for 1847).
pairs of looms with 108 spindles. These were all powered by steam.\(^1\)

Raynor Brothers opened a mill on the Lachlan Swamps but the venture was shortlived and the machinery was removed to Jamison's mill at Penrith which was managed for a time by the Raynors.\(^2\) Thomas Barker diversified his manufacturing interests and in 1848 commenced building a mill adjacent to his flour mill in Sussex Street; this mill, however, did not begin operations until 1852.\(^3\)

The manufacture of textiles, which began as a government enterprise, was continued by the government throughout most of this period. In 1828 the Female Factory at Parramatta employed from 100 to 150 women in spinning, while eleven to fifteen looms produced about 30,000 yards of cloth. Cloth here was manufactured from undyed wool and twilled after the style of Scotch blanketing. Because it thickened on washing it proved most durable for convict slop clothing.\(^4\) In addition to the factory system, which operated in both the public and private sectors of the economy as in the previous period, the industry was also organised on a domestic basis. Some of the more prosperous settlers had small manufactories that produced coarse cloth to clothe their assigned servants. Many such small concerns, like that of Brown at "Winburndale", Bathurst, appeared in the newly settled districts.\(^5\)

\(^1\)PMR for 1840.
\(^2\)TCJ, 23 March 1878, p.551.
\(^3\)SMH, 8 March 1852.
\(^4\)HRA, 14, p.21.
\(^5\)These were usually shortlived experiments. Brown's woollen manufactory established in 1831 was a brick building forty by fourteen feet. SG, 26 July 1831, 4 September 1834.
With the gradual increase in the production of textiles there was an increase in the number of manufacturers of all types of men's and women's clothing who advertised in the columns of the press. Low's Sydney Directory for 1847 lists 112 tailors, 28 dressmakers, 25 milliners, 28 bonnet makers and six hatters, most of whom carried out their trade in Pitt and George Streets, the main retail area of the town. The firms Anthony Hordern and Sons Pty. Ltd., and David Jones Ltd., had their origins as small manufactories during this period. ¹ The government was also involved in the clothing trade; it set up a clothing workshop at the Hyde Park (men's) barracks in 1826 ² and towards the end of the 'thirties the Female Factory at Parramatta began the manufacture of clothing and straw hats. The average number of tailors employed in the Hyde Park barracks was about twenty-six and in the year 1826-7 they turned out over 5000 suits of slop clothing from both local and imported cloth. ³

(iv) Engineering and the metal trades

All branches of engineering and the metal working trades made considerable progress during the years 1822-51. The type of work undertaken was extended widely and technical proficiency improved. The introduction of gas, a public water supply, steam boats, and proper house drainage meant a demand for new kinds of metal products. Perhaps in no other branch of manufacturing were the advantages of the assisted immigration of skilled tradesmen more evident.

²HRA, 13, pp.662-3.
³HRA, 14, pp.20-21.
Iron and brass foundries greatly increased in number; Sydney had three foundries in 1831, but by 1851 the number had increased to fourteen. (Table 5)

**TABLE 5**

IRON AND BRASS FOUNDRIES, 1821-51

<table>
<thead>
<tr>
<th>Year</th>
<th>Sydney</th>
<th>Total in NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1821</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1826</td>
<td>1 *</td>
<td>1 *</td>
</tr>
<tr>
<td>1831</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>1836</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>1841</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>1846</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>1851</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>

* Estimate

Source: PMR for 1831-51.

As the above table shows, foundries, unlike some other types of manufactory, tended to be concentrated in Sydney; indeed it was not until 1842 that the first foundry was set up outside Sydney. ¹ Although it seems there was an incentive to locate iron and brass foundries as well as agricultural implement works in the main agricultural areas, the fact that iron still had to be imported from England offset any general tendency to disperse the heavier types of metal working industry.

¹This was near Newcastle. A second was established at Maitland the following year and operated throughout the 'forties.
Blacksmiths, however, engaged in making and repairing the smaller types of agricultural implements were scattered throughout the rural areas. Some of the larger landholders even kept their own smiths who also performed work for settlers in the neighbourhood. These tradesmen usually charged 4d. per pound for workmanship: the employer found the iron and the smith returned 90 pounds of worked iron for every hundred pounds of bar and other iron delivered to him.  

The first private foundry of any importance in Sydney was that of James Blanch which was established in 1821 near Dickson's steam mill on Darling Harbour. In 1822 Blanch moved to a "more commodious and centrical situation" at 71 George Street next door to the Royal Hotel and theatre, advertising himself as a "Mathematical and Philosophical Instrument Maker, Brass Founder, Brazier and Plater, General Worker in Silver and Brass". Blanch continued his foundry until his death in 1841; he produced a wide range of goods in copper, brass, tin and iron, including stoves and steam engines.

The 'thirties and 'forties were the real pioneering period of the engineering, machining and toolmaking trades. In 1831 there were only three foundries, those of Pattison, Blanch and Prescott. However, the

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2 N. Selfe, op.cit., p.xxiii.
3 SG, 8 February 1822.
4 SG, 12 January 1826; Sydney Herald, 28 October 1833; SG, 31 October 1835.
next few years witnessed the establishment of many new ones including those of Castle and Dawson (1834)\(^1\) in George Street, Rainey (1835), Bourne (1835), Struth (1836), and Orr (1838) in Sussex Street,\(^2\) and Dingwell and Creighton (1836) in Clarence Street.\(^3\) Castle and Dawson took over an earlier business, the Australian Carron Foundry, at the wharf of Aspinall, Brown and Company in 1834, and continued operations throughout the 'thirties and 'forties. Their range of products included "Iron-railing for Balconies, Verandahs, Tombs etc. according to the latest designs in England"," and their first specimen of "colonial casting" for verandahs was said to be "tasteful and elegant".\(^5\) Columns, stoves, grates, and corn mills were also manufactured; by 1849 ironwork for ships, boiling-down pans, and weighbridges could be added to the list.\(^6\) In 1840 the foundry was equipped with eleven forges and four lathes powered by two steam engines.\(^7\) Bourne's "Phoenix Iron and Brass Foundry" specialised in the manufacture of steam engines, pumps, boilers, and hydraulic presses.\(^8\) John Struth, "Engineer and Millwright", established his works originally at Street's Wharf in Sussex Street and advertised as willing to manufacture all types of machinery, high and low pressure

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\(^1\)SG, 13 February 1834.
\(^2\)PMR for 1835, SG, 6 August 1835, 20 September 1836, PMR for 1838.
\(^3\)SG, 2 June 1836.
\(^4\)Sydney Herald, 12 September 1833.
\(^5\)SG, 13 February 1834.
\(^6\)SMH, 7 March 1849.
\(^7\)PMR for 1840.
\(^8\)SG, 6 August 1835.
steam engines, hydraulic pumps and presses, flour mills, threshing and winnowing machines. In 1840 Struth moved to a site further north in Sussex Street adjoining the General Steam Navigation Company's wharf where in the 'forties he specialized in the repair of colonial steamers, built marine engines and filled contracts for the supply of water pipes. (Plate VIII & Fig. 4)

The firm of Peter Nicol Russell, established in Sydney in 1842, developed into one of the most important engineering establishments in Australia during the second half of the nineteenth century. The story of this firm is an interesting example of a phenomenon common in the developmental stage of secondary industry in a new country: the migration of capital, skills, and enterprise from the mother country to a colony.  

The Russell family owned iron foundries and engineering works in Kirkaldy, Fifeshire, Scotland, but as the result of a depression in Scotland they were induced to migrate to Van Diemen's Land in 1832. Robert Russell (father of P.N. Russell) and his sons set up a successful general engineering business at Hobart. After six years, when there seemed no prospect of the business becoming more extensive, the Russells moved to Sydney where the market was boosted by increasing immigration and appeared more promising. Accordingly, Russell Bros.  

established a brass and iron foundry in lower George and Bridge Streets in 1839,

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1 SG, 20 September 1836. Struth's foundry ceased operations in 1855.
2 The account of Russell's establishments which follows is based on some notes collated by Florence M. Taylor in the 1920s, located in the archives of the University of Sydney.
3 Robert jnr. and John Russell. Robert Russell senior died in 1840.
which in 1842 was moved to Cox's Wharf in Margaret Place. Peter Nicol Russell took over Blanch's foundry in 1842, and, with the labour of two or three men and several boys, quickly built up a flourishing business. Government contracts, together with private work, necessitated the expansion of his works in George Street and the occupation of new sites in Pitt Street and Sussex Street. The firm later occupied other premises because of the need for expansion and finally ceased operations in 1874.

The colony still depended largely on England for most of the metals and patterns, as well as for much of the skilled labour employed. Some scrap iron was used, but the discovery of coal, iron, copper and limestone in various parts of the Australian colonies led, in the 'forties, to the first serious experiments in the smelting of metallic ores. Copper mines had been opened at Molong in New South Wales and at Burra Burra in South Australia and a small copper smelting works was set up at Lane Cove near Sydney in 1846. Attempts were made to

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1 SG, 1 October 1842.
2 Russell Bros. in Bridge Street ventured into shipbuilding and ship ownership in the 'forties, but were soon forced to wind up their activities. The immediate cause of the closure of the works in 1874 was a strike by some 850 employees. The whole incident is a milestone in Australian industrial relations history.
3 SG, 9 October 1834.
4 J.O. Balfour, op.cit., p.41.
5 J. Pattison, op.cit., p.128; J.O. Balfour, loc.cit. There was also a plan to smelt copper ore from New Zealand in Sydney for trans-shipment to England in the late 'forties. HRA, 24, p.630.
smelt local ores, as the forges and foundries in Sydney and the larger towns, provided a potential market for a colonial ironworks; the establishment of a railway company also raised hopes for a further demand. In 1848 local iron ores were smelted commercially in the colony for the first time at Mittagong, seventy miles south-west of Sydney.¹

Newcastle coal had begun to supplant wood as the major source of fuel in the late 'twenties, and this coal was found most suitable for founding and smelting purposes in the Sydney foundries. There are no figures showing the amount of coal used in Sydney foundries, but John Struth said in 1847 that he used over 400 tons of Newcastle coal per annum to produce coke. At this time, according to Struth, it cost the consumer 12s. to land one ton of coal at the Sydney wharf; the cost of coal at the pithead was 7s. per ton and transport from Newcastle 5s. per ton.²

Not only did the range of operations in the metal and engineering trades increase, but also there were improvements in techniques. By the early 'thirties one iron founder even felt justified in advertising that no "colonial finish" jobs would be turned out.³ Single castings

¹SMH, 12 December 1848. This was the Fitzroy Iron Works, which was officially opened in 1850 when it employed seventy men; smelting operations did not prove successful and were discontinued after three years. SMH, 22 March 1850; see also R. Else Mitchell, JRAHS, 26 (1940), p.420.
²Report from the Select Committee on the Coal Inquiry, VPLC (1847), 2, pp.335-92, evidence of John Struth.
³Sydney Herald, 12 September 1833.
of about 1000 pounds could be produced by 1828, and by 1835 one founder advertised that he could produce "any size of casting required in the colony". In the 'forties Dawson's foundry was able to produce single castings of four tons in weight.

Bourne's foundry was able to produce a 12 h.p. steam engine for a local flour mill in 1836. The Sydney Gazette thoroughly approved of this latest break-through in colonial manufacturing and claimed that in time it would free the colony from "dependence upon foreigners". However, it expressed doubt as to whether it was cheaper to manufacture the engine locally than to import it. In the 1840's, however, it appears that colonially manufactured engines could compete with the imported product. The great demand for steam flour mills in the agricultural districts, which were becoming more distant and remote from Sydney, stimulated mechanical engineering in Sydney, so that in June 1840 a dozen steam mills were being built in Sydney for settlers in the interior. The foundries of Blanch, Bourne, Struth, and Russell produced considerable numbers of beam and table type engines. The following extract from the Sydney Herald indicates the progress made in mechanical engineering during this period

1 SG, 4 July 1828. By this time Pittsburgh (U.S.A.) foundries were producing castings of four tons. V.S. Clark, op.cit., vol.1, p.506.
2 SG, 4 June 1835.
3 N. Selfe, op.cit., p.xxv.
4 SG, 4 June 1836 (editorial).
5 SMH, 15 July 1844.
6 Sydney Herald, 1 June 1840 (supplement).
7 N. Selfe, loc.cit., p.xliv.
Some years ago, Engineers were so seldom to be found here that it was difficult to procure the manufacture of any elaborate work. The case is now altered, and the ingenuity of the Engineer has created a trade in mills, boilers, and engines, iron-boats, and other works of that description, that must daily expand, and soon render us independent of Foreign or British supplies.\footnote{SG, 3 February 1825, Sydney Herald, 2 and 19 July 1832.}

Thus by the 'fifties, there existed a stock of experience and a degree of progress in mechanical engineering which facilitated the building and maintenance of railways and works and the construction of mining and other industrial machinery.

As well as the heavier type of manufactures, the cards and advertisements in the press testify to the vigorous growth of all classes of metalworking in the years 1822-50. A great variety of products, ranging from agricultural implements to jewellery, was produced by small establishments working in iron, tin, zinc, brass, silver and gold. There were forty-one black and white-smiths in Sydney in 1847,\footnote{Low's Sydney Directory for 1847, p.117.} most of whom worked alone with perhaps the help of an apprentice or two. Some, like Launcelot Iredale, and William Macdonald in George Street, were importers and retailers of all classes of ironmongery as well.\footnote{Sydney Herald, 19 August 1840.} The gold and silversmith trades were early established and several were in business in Pitt Street in the 'twenties.\footnote{See SG, 11 January 1822, 12 January and 15 April 1826; Monitor, 2 June 1826; Sydney Herald, 6 August 1832.} Other trades or designations which appear in newspaper advertisements in this period are: "Wheelwright, Chaise and Plough-maker", "Coach and
Harness Plate and Cabriolet Founder", "Whitesmith and Bell Hanger", "Cutler and Comb Manufacturer", "Wheelwright and Agricultural Implement Maker", "Lamp Manufacturer, Gas Fitter, General Founder, Tinplate Worker".  

There were thus many important developments in the metal trades and engineering during the period 1822-50. Unlike other types of industries, this group was most noticeably concentrated in Sydney, especially on the waterfront, where, after the construction of the first steamboat in 1831, these trades began their association with shipbuilding and maintenance. In addition to the linkages with shipbuilding and the servicing of ships there were other important linkages of this group with agriculture and the pastoral industry.

(v) Other industries based on local materials

Boiling-down sheep and cattle for tallow which was exported to England became a very profitable manufacturing venture in the depressed 1840's.  

1See in order SG, 7 August 1823, 6 December 1834, 15 April 1826, 26 August 1830, Sydney Monitor, 18 April 1829, and Sydney Herald, 31 July 1840.  
2SMH, 4 April 1844.  
3SMH, 24 June 1843; 12 April 1844.  
4SMH, 1 July 1844.
was applied to cattle as well when the local fat-stock market was low. Henry Melville gives the following summary of the position with regards to cattle:

The general rule is, that if fat cattle will sell for more than two pounds a head, they are at too high a rate for boiling, and the butchers then are the only purchasers; when, however, the animals once reach Sydney, they must be sold at any price: it will not answer to purchase food for them, and it is never worth the while of their owners to drive them back to their runs, and keep them there under the expectation of a better market.¹

Usually the whole carcass was cut up and boiled,² but occasionally the tongues were salted and hams made. Gelatine produced as a by-product was at first exported to England in some quantity, but there appears to have been a prejudice against this colonial product so the practice of exporting it was discontinued.³

Sydney, the main stock market, was naturally a large boiling-down centre. Merchants, pastoralists and tanners, and often a combination of each, set up numerous boiling-down plants on the outskirts of the town, especially in the Waterloo-Botany area. Here in 1845-50 about 72,000 sheep and 25,000 cattle were boiled-down to produce about 1570 tons of tallow.⁴ Profits were often as much as £30 per ton. The tanning firm of J.R. and A.F. Wilshire, which also operated a boiling-down plant,

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² Both Melville, loc.cit., and W. Hughes, The Australian Colonies..., (London 1852), pp.137-144 give vivid descriptions of the boiling-down process.
³ Melville, loc.cit.
⁴ Returns from Boiling-down Establishments, 1844-1850, NSWAW 4/7268. The figures exclude the Parramatta and Liverpool districts and are incomplete for the first year, 1844.
disclosed in 1844 that the cost of exporting tallow to England was £9.6.0 per ton including a freight charge of £4 per ton.\(^1\) Most of the tallow was exported but some of course was used in the local production of soap, candles and leather. Though ranking very low in terms of value added in the manufacturing process, tallow was the most important manufacture in terms of total export value in the colony to 1850. From 1843 to 1850, 35,000 tons of tallow valued at over one million pounds were exported from New South Wales to England.\(^2\)

The tallow trade, which was enthusiastically hailed as the colony's second staple to wool\(^3\) had important backward and forward linkages. Large iron vats or pans were needed, and, after the superiority of melting-down sheep and cattle by steam was demonstrated, foundries were busy providing the necessary equipment. Large numbers of cases were required in which to export tallow, which led to the expansion of the cooper's trade in Sydney. By 1847 there were thirty-two cooperages operating in Sydney supplying kegs and casks from local timber.\(^4\)

Tanning was an industry that had spread rapidly into the country districts. The dispersed nature of the raw materials and the expense involved in salting hides for transport to distant centres\(^5\) necessitated to some extent the dispersal of tanneries (see Table 6). By 1831 there

\(^1\) SMH, 1 July 1844.
\(^2\) Blue Books, 1843-50.
\(^3\) SMH, 29 February 1844.
\(^4\) Low's Sydney Directory, 1847, p.123.
\(^5\) SMH, 24 October 1844.
were seven at Windsor, three at Maitland, two at Sutton Forest and six at Bathurst. ¹ Like some other industries, such as those connected with food and drink, there was an increase in the number of separate industrial establishments in the interior in the 'forties, from five in 1841 to 45 in 1851 (Table 6); but it is important to remember that many of these were small concerns, probably associated with boiling-down establishments. Country towns that were centres of pastoral districts such as Windsor, Campbelltown, Bathurst and Goulburn were natural points for the location of tanneries. In these districts tanneries were often no more than an adjunct to a farmer's or grazier's business, and were worked by farm labour as an additional department of the farm.²

TABLE 6
TANNERIES, 1831-51

<table>
<thead>
<tr>
<th>Year</th>
<th>Sydney</th>
<th>Interior</th>
<th>Total in NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1831</td>
<td>5</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>1836</td>
<td>7</td>
<td>7</td>
<td>14</td>
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<tr>
<td>1841</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>1846</td>
<td>7</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>1851</td>
<td>9</td>
<td>45</td>
<td>54</td>
</tr>
</tbody>
</table>


¹On an average, six tanneries operated each year at Windsor during the period 1831-51.

²Governor Darling in his report to accompany the Blue Books for 1827 noted that "several of the more opulent settlers in the Interior... manufacture Leather for Harness and Farm Use". HRA, 14, p.129. The government had several tanneries in the interior also; for example at Cawdor (near Picton) and at Bathurst.
However, despite the increase in number and the wide dispersal of tanneries throughout New South Wales, Sydney remained the most important single centre of the industry and the largest tanneries were located here. Three factors facilitated the expansion and growth of specialization in the tanning and currying trades in Sydney during this period: first the overall increase in the number of livestock in New South Wales; secondly, the increasing number of cattle slaughtered in the Sydney district; and finally the establishment of boiling-down works near Sydney after 1843. In the thirty years period, 1821-51, the cattle population of New South Wales rose from less than 70,000 to over 1.25 million. From 1832 to 1837 an average of 15,000 head of cattle per annum were slaughtered for consumption in Sydney alone, and by the 'forties this number had increased to 30,000.\(^1\) At the same time, in the 'forties the boiling-down establishments on the outskirts of Sydney provided an extra source of raw hides for Sydney tanneries.\(^2\) Over 60,000 cattle and 170,000 sheep were boiled down for tallow in the County of Cumberland alone in the period 1845-51, and half of this number were processed in the police district of Sydney.\(^3\)

\(^1\)See *Blue Books* for 1832-7, 1848-50; in 1830-1, the number of cattle slaughtered per week ranged from 150 to 200. See Inspector of Slaughter Houses to Colonial Secretary, 2 July 1831, *HRA*, 16, pp.331-2; also *SG*, 24 June 1830.

\(^2\)Wilshire's tannery was also receiving hides from Thomas Barker's boiling-down establishment in 1844-5. Report from the Select Committee on the Act to Regulate the Slaughtering of Cattle, *VPLC* (1845),p.570.

\(^3\)PMR for 1845-51 [4/7268-9].
While the fact that Sydney was an important slaughtering centre determined the general location of the largest tanneries, factors such as the availability of open well-drained ground and a good water supply determined their actual site within the town. Tanneries were scattered widely and not concentrated in any particular area; but by the 1830's suitable sites in Sydney were probably hard to obtain and this led to two new tanneries being established outside the town: one on the South Head Road, and the other on the Surry Hills. Tanneries in operation in Sydney in the 'thirties were: Wilshire's on Brickfield Hill; Bond's and Matthew's in Pitt Street; Pawley's and Pearce's in Castlereagh Street; and Watt's and Payne's in Phillip Street. Several of these operated, apparently continuously, throughout the period; Wilshire's (established in 1803), Hercules Watt's (established about 1815) and William Pawley's (established in 1822) were still in operation in 1851.

James Wilshire's tannery on Brickfield Hill was the largest in Sydney throughout this period. Figure 8 shows the layout of the three-quarter acre premises about 1840. Wilshire had so extended his original

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1SG, 10 June 1834; VPLA (1862), 5, p.1135.
2PMR for 1831-40, Ford's Sydney Commercial Directory for 1851. See also the evidence of W. Pawley and H. Watt before the Select Committee on the Tanners and Curriers Bill, 1859-60. VPLA (1862), 5, pp.1131, 1135.
3Figure 8 is redrawn from "Plan of Property in Sydney Devised under the Will of the late James Wilshire Esqre" (n.d.). The original MS map is in the Registrar-General's Department, Sydney, at 5438-L.
Figure 8.
business that in 1829 he was able to manufacture 2000 hides, 5000 kangaroo skins, 8000 sheep skins and seven rolls (420 skins) of parchment; in the same year he paid £500 for mimosa bark.¹ In the 'twenties the tannery employed between twenty and thirty assigned convicts; by the 'forties the number employed had increased to between thirty and forty.² Wilshire's establishment also carried on fellmongering and the manufacture of soap, candles, glue and parchment. By about 1844 fellmongering, together with the manufacture of parchment, soap, and dip-candles was discontinued, and by the end of the 'forties so was the manufacture of mould candles.³ According to the evidence of Wilshire's son, Austen Forrest Wilshire, (before a select committee of the Legislative Assembly in 1865) some of these activities were discontinued because of the lack of skilled workmen. But perhaps the resultant specialization in the tanning and currying trades also reflected to some extent a change in the character of the local market, which by the 'forties was large enough to permit a greater degree of specialization. Tanning and currying were apparently fairly lucrative trades: in the 1850's, "when the tannery was not half worked", it still showed an average profit of £1700 per annum.⁴

¹ Presidential Address to the Agricultural and Horticultural Society of N.S.W., in SG, 16 October 1830.
² VPLA (1862), 5, p.1142.
³ VPLA (1865), 2, p.838.
⁴ Memorandum from Accounts of the late firm of J.R. and A.F. Wilshire... from the year 1852 to 1857 inclusive, Appendix to Select Committee on the Petition of Mr Austen Forrest Wilshire, 1865, VPLA (1865), 2, pp.843-4.
Most of the leather working trades were well represented in Sydney by 1850. About 160 shoemakers are listed in Low's Sydney Directory for 1847, and there were several saddlery and harness and glove manufactories.¹ The government set up a leather as well as a clothing workshop at the Hyde Park barracks in 1826. This establishment, using both imported and local leather, was capable of producing 400 pairs of shoes per month, although in its first year, with about twenty-three shoemakers employed on an average, actual production was about half this rate.² In 1830 an average of thirty shoemakers was employed here.³

Up to 1844 the value of boots, shoes, and unmanufactured leather imported into New South Wales greatly exceeded that exported; but from 1844 to 1852 the reverse was true. In 1851 the total value of hides, leather, and shoes imported was £23,000 as against £36,000 for the export figure. The amount of unmanufactured leather exported also rose sharply in these years; in 1851 about 250 tons were exported, mainly to Great Britain, New Zealand and other British colonies.⁴

The private manufacturing sector of the economy was further strengthened during this period by the appearance of many smaller industries which produced a variety of goods from local raw materials, but

¹Australian, 9 February 1826; Sydney Herald, 10 June 1840; SG, 31 March 1836; Sydney Herald, 18 February 1833.
²HRA, 13, pp.662-4.
³Australian, 10 March 1830.
⁴SRNSW, 1851.
which also had to face serious competition from imports. The most important of these were the manufacture of soap and candles, tobacco, and furniture.

Soap and candle making, firmly established since 1805, was sometimes associated with tanning but did not show the same degree of dispersal as the tanning industry. This was because tallow, unlike hides, did not have to be specially treated for transport to distant points of production; and because Sydney itself was a large meat-killing and, after 1844, a large boiling-down centre. Furthermore, the necessary alkali for soap-making (from the ashes of the mangrove tree) was abundant around Sydney which was also a large market.

The first large soap and candle manufactories were established in the late 'twenties and early 'thirties. This was the result of a degree of protection provided by the depression,¹ and in response to an increased demand for both domestic and wool-washing soap. By 1828 the greater portion of candles for domestic use was being manufactured in the colony.² In the 'thirties no less than eleven different concerns appear as engaged in the manufacture of these products in the Sydney district, but no more than six operated in any one year. In the early 'forties William Bell Allen established a soap and candle works in John Dickson's old steam mill. With an annual output of seventy tons of

¹Sydney Herald, 11 July 1831; Currency Lad, 3 November 1832.
²HRA, 14, p.129.
soap the works were in 1847 one of the largest in the town.\(^1\) By 1851 Allen was manufacturing "hydraulic pressed candles", which were able to withstand the journey through the tropics and intended for the Californian market.\(^2\) The soap and candle industry was in a sound position by 1849 when ten soap works in Sydney produced 1145 tons; in the same year Sydney's six candle works had an output of 620 tons.\(^3\)

The manufacture of tobacco is an example of one of those industries which used local materials after 1821 and which suffered considerably in competition from imports. It was an industry particularly sensitive to fluctuations in the world market price and its well-being depended very much upon protection in the form of heavy import duties on North American and Brazilian tobacco.\(^4\)

In the 1830's tobacco presses, snuff mills, and cutting machines were imported from England and no less than twelve different small concerns embarked, from time to time, on the manufacture of tobacco, cigars, and snuff from colonial "Negro Head Tobacco". But, as in the case of breweries, they were not firmly established and were characterized by constant changes in ownership and discontinuity of operation: in the

\(^1\)PMR for 1847.
\(^2\)SMH, 25 January 1851. Allen's works continued for many years and were taken over by his sons. See G.P. Walsh's article on W.B. Allen in D. Pike (ed.), *Australian Dictionary of Biography*, vol.3, pp.25-26.
\(^3\)PMR for 1849.
\(^4\)See the effects of the reduction of the prohibitory duty in 1825. SG, 16 June, 21 November 1825 and *Australian*, 21 February 1827.
'thirties no more than three operated in any one year. The late 'forties saw both an increase in production and a marked deconcentration of the industry. Rather than in Sydney, the industry was almost entirely concentrated in the growing areas, especially in the Hunter River Valley. In 1849 there were only five tobacco works in Sydney producing three tons of tobacco and 140 pounds of snuff; in 1850 the three manufactories operating in Sydney produced only about three per cent of the colony's total production of about 190 tons.\(^1\)

Numerous cabinet manufactories, often associated with the undertaking and upholstering businesses, were established in the 'twenties and 'thirties. The optimistic *Australian* announced in 1827 that

> The cabinet-makers of the Colony are increasing, both in number and ability; and it will not be long...before the custom of sending to England for furniture will cease to be pursued, either for the sake of gratifying taste, or from motives of economy.\(^2\)

By 1847 there were 41 cabinet-makers and 32 coopers in Sydney.\(^3\) The latter trade, as already mentioned, was stimulated by a demand for containers for the export of tallow. The early 'twenties saw the inauguration of the first regular stage coaches between Sydney and settlements in the interior,\(^4\) and towards the end of the decade and during the 'thirties several coach manufactories were started in the

\(^{1}\) PMR for 1849, 1850.
\(^{2}\) *Australian*, 8 August 1827.
\(^{3}\) *Low's Sydney Directory for 1847*, pp.121, 123.
\(^{4}\) *SG*, 9 October 1823; 29 January, 19 February 1824; 28 April 1825.
town. Many cooperages were established and like "ship-block manufactories" showed a tendency to be located near or on a wharf on the eastern side of Darling Harbour. The timber for these industries was both brought by boat from the coastal rivers north and south of Sydney and, especially in the 'twenties, gathered in the vicinity of Lane Cove, Castle Hill, Dural, and Pennant Hills and conveyed by water to timber yards and steam saw-mills on Darling Harbour.

Several more rope-walks were established in Sydney during the 'twenties, and a wide range of lines and cordage was produced. This range included "patent whale lines, wrought from the New Zealand Flax".

The printing, engraving and book-binding trades were established on a firm basis by 1851. William Moffitt commenced business as a bookbinder, engraver and copper-plate printer in King Street about 1830; John Sands followed in the same trade in 1838. Both were first class craftsmen and established long-lived firms. After 1824 several other weekly newspapers, were established, and in the 'forties the first regular daily newspaper the Sydney Morning Herald was issued. All the newsprint was still imported and in 1840 the annual consumption of

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2 SG, 1 June 1824, 27 October 1829, 25 December 1834, 5 November 1836, 11 October 1838, 26 October 1839.
3 See correspondence and petitions of various rope-makers to the Colonial Secretary, 1827-1831, CSL (Land), 2/2299 and *Sydney Monitor*, 31 October 1829.
4 SG, 14 November 1828.
5 The *Sydney Gazette* was a victim of the depression of the 1840's; it ceased publication on 20 October 1842.
newsprint was estimated at 6000 reams. Several attempts and proposals
in the late 'twenties to re-establish the paper mill on the Lachlan
Swamps came to nothing.2

Glass-making, like the manufacture of paper, was another industry
which, after the initial attempts in 1812, was abandoned. Although
a large tract of sand suitable for the manufacture of "the finest Flint
Glass" was discovered between Sydney and Botany Bay about 1830,3 the
industry was not revived during this period. Coarse and glazed
earthenware continued to be manufactured in Sydney by Enoch Fowler.
Other products from local materials included gas,4 starch,5 printing ink,6
blocking, matches,7 silk,8 and statuary and marble goods.9

The period 1822-50 which saw the transformation of New South Wales
from a penal settlement to a colony, the expansion of commerce, and
increasing production in primary industry, also witnessed new and
important developments in manufacturing. New products, both capital

1Sydney Herald, 19 August 1840 (editorial).
2See SG, 22 August 1828; Australian, 11 November 1828; Sydney Monitor, 31 August 1829, 9 January 1830.
3See HRA, 16, pp.763-6; 19, pp.527-37. T.S. Mort was also interested in
the manufacture of glass. See SMH, 11 January 1851, p.5.
5Sydney Herald, 16 May 1831, 12 August 1833.
6SG, 4 May 1830; Sydney Herald, 18 July 1831.
7SMH, 2 January 1851.
8SMH, 24 May 1850.
9SG, 5 November 1836; Sydney Herald, 30 March, 18 November 1840.
and consumer goods, were made; factories became larger and more specialised; and steam power was more widely applied to manufacturing processes. Naturally, industries based on the working up of produce from the land grew as population, settlement, and agriculture expanded; but sizeable progress was made also in the engineering and metal trades which was linked in turn with developments in shipping and the colony's two staples: wool and tallow. One other important development was that the government's role as a manufacturer and consumer declined while the private sector grew and public manufacturing companies appeared.

Sydney, where certain external economies prevailed, was the largest manufacturing centre in New South Wales in 1850. Though the new settlements and towns of the colony gave rise in their turn to some industries based on local raw materials, Sydney, the main town and port, continued to dominate manufacturing.
PART II
Chapter 3

THE ROLE OF THE GOVERNMENT IN MANUFACTURING

It is impossible to consider the development of manufacturing in Sydney during the period 1788-1850 without noting the important role that the government played. However, this role from the 'twenties onwards changed and diminished in importance as the private sector gradually developed with the increasing arrival of free settlers. Yet it was only natural in the early years that the government was the principal source of capital, employer of labour, consumer, and manufacturer because of the colony's penal nature and the fact that the government, through its commissariat, dominated the economic life of the colony. The government gradually relinquished its predominance in these fields, and by the 1830's was no longer important in manufacturing except as a consumer of certain products.

As mentioned above in Part I the government brought from England the capital equipment to establish many early industries: steel hand mills for grinding flour were brought out in the first fleet; parts for the first windmill in 1795; looms in 1798; brewing equipment in 1803; and salt pans the following year. Apart from pioneering the flour milling, textile, brewing and salt-making industries the government was also prominent in the manufacture of other basic necessities such as building materials, agricultural implements and other classes of ironwork, boats, leather, and clothing. Though the government, the main source of capital equipment, was anxious to establish certain trades
and industries with a view to import replacement, it was often willing in the interests of efficiency to lease certain ventures to private individuals. Its brewery and salt pans were leased out in 1806¹ and the same happened in the case of the government windmills. Nevertheless it remained very much engaged in industry throughout the Macquarie period and the next two decades. During the Macquarie period, for example, the extensive programme of public works maintained Government participation in manufacturing. Sometimes it was actually forced into manufacturing ventures because of high prices and the inferior quality of products supplied by private contract. In Macquarie's day the government manufactured its own lime because the price was always raised when the government needed lime from private sources, and it was usually of poor quality. In 1821 the government maintained a woollen manufactory, dockyard, lime-kilns, saw-pits, brickworks, a slaughter-house and the Lumber Yard.

The government's three largest manufacturing establishments were the multi-purpose Lumber Yard, the Parramatta Female Factory, and the Hyde Park Barracks. Several hundred convicts in over forty different occupations, ranging from the iron to the clothing trades, were employed in the Lumber Yard. One hundred to one hundred and fifty convict women were employed in the Parramatta Factory in the late 'twenties; and, about twenty-six men worked in the clothing workshop at the Hyde Park Barracks.

¹HRNSW, 6, p.40.
During the 'twenties and 'thirties the government operated tanneries, quarries, brick and saw-pits; but the largest government manufactory, the Lumber Yard, was closed in 1832.\textsuperscript{1} Government participation in manufacturing during the 'thirties and 'forties gradually diminished as more free settlers and private capital came to the colony, and it finally ceased in the 'forties when the abolition of transportation in 1840 deprived the government of its labour supply. The Parramatta Factory ceased operations in 1847 when the last of the short-term convicts had served their sentences.

As well as being actively involved in manufacturing ventures the government offered incentives, premiums and rewards for industrious convicts and settlers who contributed to the good of the community. Such contributions included the development of an approved brand of manufacturing, or making a breakthrough in technology for the infant colony. In 1800, following the crude attempts at the manufacture of cloth under Governor Hunter, two flax dressers and two weavers, convicts for life, were selected to carry out experiments in the manufacture of cloth and linen with the incentive that emancipation would be the reward "for bringing that manufacture to perfection".\textsuperscript{2} In 1802 prizes of sheep and cattle were offered to those families who grew and manufactured the most flax over a two-year period.\textsuperscript{3} This was because the government, in the early years at least, was obsessed by the possibility of

\begin{footnotes}
\item[1] HRA, 17, p.29; SG, 11 March 1834.
\item[2] HRNSW, 4, p.183.
\item[3] HRNSW, 3, p.596.
\end{footnotes}
cultivating industrial crops like flax and hemp. Each of the early governors received special instructions to encourage the growing of N.Z. flax (*Phormium tenax*) as the British government was constantly looking for a staple, especially if it had relevance to the Navy's requirements.

Free settlers also received their rewards. When Governor Macquarie opened Absolom West's water mill in January 1812 he made him a present of £5 worth of wheat for the use of his own family. It was the first wheat ground by the mill. He also made to West "a Present, on the part of the Government, of Twelve gallons of Spirits to assist him paying his work-men".\(^1\) Again, in 1806, before the manufacture of beer was firmly established, the government offered the prize of a cow to the person who produced the two best hogsheads of peach cider.\(^2\)

Not only did the government initiate most manufactures, build mills and manufactories, and encourage some manufacturers, but it also found itself involved in fostering improved technology. In the pre-windmill days of 1794 it held a competition in Sydney to determine the most efficient type of man-powered mill,\(^3\) and in the Lumber Yard in 1831 it held an exhibition of agricultural machinery sent from England and invited those interested to take patterns of the various types of ploughs, drills, hay making machinery, chaff and turnip cutters, carts and waggons.\(^4\)

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1. L Macquarie, Memoranda, 1808-14, p.40 [A.772].
2. HRA, 6, pp.152-3.
Thus the government was the pioneer of most industries even if it was willing to surrender these quickly to private individuals. But against all this involvement and achievement there is also the negative aspect of the government's role in manufacturing. Some manufactures were entirely prohibited and others were severely restricted. The distillation of spirits from either grain or sugar was forbidden until 1823, when distillation was allowed in the case of grain. A proposal in 1804 to erect a distillery in the colony by a Bengal planter and distiller was perfunctorily dismissed by Governor King. Despite the claim that the distillery would "save to the Colony the large sums in Cash which are annually drained...for the purchase of Spirits", King was of the opinion that "the introduction of a person of that description into the Colony ought to be as much guarded against as the Plague". However, despite severe penalties and the direction of the government's policy at the time, the will of the people prevailed and illicit distillation was a profitable and thriving type of manufacture for those bold enough to indulge in it.

Like distilling, boat-building was another industry that suffered from government restrictions. Governor Phillip's first set of instructions laid down that all intercourse with foreign ports was prohibited and

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2. Memorial of William Fitzmaurice to Governor King, 20 February 1804 and King's comment to Under-Secretary Sullivan, HRA, 5, pp.128-9.
that no sailing vessels were to be built.\footnote{1}{HRNSW, 1, pt.2, p.91.} From the beginning of the settlement the construction of all vessels was carefully watched, not only in order to prevent convicts escaping but also because it was thought that some of the vessels built might be capable of infringing on the charter of the East India Company. In 1791, the government ordered that no boat whose length exceeded fourteen feet could be built without permission.\footnote{2}{Government and General Order, 9 April 1791, HRNSW, 1, pt.2, p.486; also Order dated 18 July 1796, HRNSW, 3, pp.59-60.} But in 1797, as a result of successful convict escapes and piracy, it was found necessary to forbid "the building of any boats whatever for the use of private persons".\footnote{3}{Government and General Order, 28 October 1797, HRNSW, 3, pp.303-4.} Yet despite such severe restrictions on the boat-building industry they were being largely ignored by 1804 because of the necessity to keep up commercial contacts with the expanding settlements and because of the need to exploit the southern whale and sea fisheries.\footnote{4}{HRNSW, 5, p.335.}

Restrictions were also applied to the manufacture of textiles as the home government had reservations about the extent to which the manufacture of fine wool was to be permitted. Lord Hobart informed Governor King in 1802 that

\begin{quote}
The exertions which have been made by certain of the settlers to improve the growth of wool are highly creditable to the individuals, and cannot be too much encouraged with a view to the future exportation of the finest quality of that article for the market of this country, rather than for the employment of it in the manufactures of the colony, which should be confined to the coarser kind of cloth.\footnote{5}{HRNSW, 4, p.825 (emphasis added).}
\end{quote}
This statement of British policy of sanctioning one branch of
textile manufacture and restraining the other clearly reflected the
penal raison d'être of the colony.

As well as encouraging certain manufactures and discouraging and
even prohibiting others, the government, out of necessity, was forced
to regulate and control further ones. Because of the recurrent threat
of famine in the early days the baking industry was one of the earliest
to come under government regulations. In May 1801 a Government and
General Order fixed the quality, composition, and weight of loaves in
order "to prevent a distressing scarcity", and it was further laid
down that "Bakers of any description disobeying or neglecting any part
of this ordinance will, on conviction, have their ovens taken down, and
be fined the penalty of £5 for each offence".¹ By 1807 all bakers
were licensed and a Bench of Magistrates decided that all bread should
be of a standard weight. It was also determined that "an average of
the price of wheat should be taken weekly, in order to enable the Bench
to assize the price for the ensuring week, to be regularly noted in the
public Gazette".² Commissioner Bigge found that bakers were licensed
"to prevent improper persons exercising the trade", that they were
compelled to enter into securities for the observance of such rules
as the Bench of Magistrates might issue, and that the price of bread
was assized each week according to the state of the market.³

¹HRNSW, 4, pp.364, 367.
²SG, 18 January 1807.
³Bigge, Appendix, BT, 2, p.590. There were fifty-two licensed bakers in
Because bread was the staff of life in a very real sense in the foundation years the government had prescribed standards, but it was reluctant to concern itself with other less essential products. For example, while it encouraged the brewing of beer in preference to spirits distillation, and licensed brewers, it did nothing to protect the unfortunate beer drinker from the many noxious concoctions to which he was exposed. Again, requests were dismissed in 1815 and 1818 respectively for the maintenance of standards in the leather trades and for the licensing of tanners.  

As mentioned, the government licensed brewers and gave the industry its blessing and encouragement. This was for two reasons: first, to reduce the consumption of the "ardent spirits" which was having such a deleterious effect on the consumers; and secondly, to stimulate agriculture by promoting the growing of barley, which in turn would improve crop rotations. But unlike the case of the bakers, the licensing of the brewers was also directed at providing an extra source of revenue for the government; and this for some years even had an adverse effect on the industry. In 1815 six brewing licences were taken

1 Memorial of J. Wilshire to Governor Macquarie, 14 January 1815, Bigge, Appendix, BT, 13, pp.907-8; Judge Advocate Wylde to Macquarie, 9 October 1818, CSIL, Bundle 12, vol.21, pp.28-42 [4/1741].

2 In 1811, four licences were taken out in the colony, two of which were in Sydney. SG, 16 March 1811.

3 HRNSW, 4, p.824; HRA, 8, p.80; and Government Public Notice 21 July 1810, HRNSW, 7, pp.397-8.
out, but this number was halved when the government made it obligatory for a brewer to take out both a beer and spirits (retail) licence together - a brewing licence cost £25, a spirits licence, £30. The brewers who were also publicans selling imported beer and spirits were thus forced to pay £55 in licence fees before they could brew and retail beer. Therefore, they were at a great disadvantage when compared with the retailer of imported beer and spirits whose licence cost £30 and whose beer was imported duty free.¹ In 1817 and 1818 only three licences were taken out; but by 1821 the situation was remedied and in this year six licences were taken out, including four in Sydney. In 1822 nine persons requested brewing licences.²

If the government could be said to have been concerned about the brewing industry, whatever its motives, it was certainly over-preoccupied with the problem of licensed distilleries as they were a potential source of much revenue. After distillation was legalised,³ in the name of stimulating agriculture and providing a market for surplus grain, it was the subject of many proclamations and legislation. Apart from the colonial revenue aspect this was so for two reasons. First, the distillation problem was inextricably bound up with the vagaries of the seasons, the market price of grain, competition from

¹G. Blaxland to Governor Macquarie, 11 May 1816, CSIL, Bundle 10, vol.15, pp.63-6 [4/1735]. Blaxland's memorial, dated 23 May 1816, protested about the government interference in brewing which he claimed "acted only as a Tax on the Land of the Colony".

²"List of applicants for Spirit Licenses for the Town of Sydney for 1822", Wentworth Papers, Petitions, etc. 1820-22, pp.143-145.

³It was to take effect from January 1823.
illicit stills and the whole question of the welfare of the populace. Second, it was linked with what the home government would allow as a tax on spirits imported into the colony: this, of course, affected certain interested parties in England.

The first regulations concerning distillation, promulgated in 1821, empowered the governor to prohibit operations when the price of wheat on two consecutive days in the Sydney market exceeded ten shillings per bushel. To distill or not to distill, and indeed the whole distillation problem was the headache of many a governor and no fewer than twelve Acts of the Legislative Council concerning distillation were passed between 1838 and 1850. Most of these were either disallowed by the home government, repealed, or had expired by 1851. Some of these acts regulated the location, layout and supervision of distilleries so as to prevent illicit stills; others raised the duty on distilled spirits to compensate the government for revenue lost to the colonial treasury from illicit distillation and smuggling. The amount of illicit distillation was so great that the government was gradually forced to raise the duty on colonial spirits from 2s.6d. per gallon in 1824 to 6s.6d. in 1840 and to 9s. per gallon in 1841 in order

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1 SG, 10 February 1821 (supplement).
2 PGSNSW, 1824-74, p.882, ff.
3 For evidence of this see HRA, 17, pp.486-8; 19, p.600; 21, p.725; 24, p.628.
to add a little more to internal revenue as a compensation.\(^1\) However, the steeper duties and consequent higher retail price only seemed to have the effect of increasing illicit distilling. Despite the extent of government attention and interference, the establishing of licensed distilleries did little to stimulate agriculture and to provide revenue.\(^2\)

The government also affected manufacturing by proclamations and legislation concerning the location of certain industries and noxious trades. The government's role in this regard did not diminish as time progressed: as in other developing towns in Europe and the United States during the industrial revolution the problem of urban growth and the location of trades offensive to both the visual and olfactory senses became an increasingly difficult one. Restrictive legislation concerning the location of noxious trades up to 1850 reflected the increasing urban development of the Sydney area. But it was nevertheless small when compared to the legislation that ensued from the late 'fifties onwards.

Regulations governing the location of manufacturing concerns were first promulgated in 1810 when the government became concerned that "that valuable and serviceable reservoir - the Tanks", the town's main water supply, might become contaminated. A Government and General Order in September of that year announced that

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\(^1\)See Act 5 Vic. No.16 (1841), PGSNSW, 1824-74, p.1172.

no necessaries, slaughter-houses, tanneries, dying-houses, breweries, or distilleries shall in future be erected on or near to the said stream, tanks or springs flowing thereto or thence along any part of their course through the town of Sydney; and further that all necessaries, slaughter-houses, tanneries, dying-houses, breweries or distilleries already erected or established thereon shall be immediately pulled down or otherwise suppressed, under pain of the owners or possessors being proceeded against under the Nuisance Act.

Slaughter-houses at this time were located in the centre of the town; but after 1815 they began to be attracted to the east side of Darling Harbour, as a result of this regulation and the government's example in establishing one near Dawes' Point. In 1810 restrictions were also placed on brickmakers who were ordered not to encroach on Hyde Park, or "presume to cut up any ground for that purpose beyond the line fixed upon as the Boundary for the Brickfields".

Some examples of government interference with the location of industry were more capricious than these already mentioned. Governor Macquarie objected to the windmill near Government House, claiming that it interfered with the privacy of the government domain and gardens. Accordingly, the northernmost mill and bakery were removed in 1814.

Another example of government interference also concerned a windmill, this time the one located on top of Barnett Levey's theatre in George Street. In 1828 this was one of the sights of Sydney, a huge five-storied

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1 Government and General Order, 15 September 1810, HRNSW, 7, p.410.
2 W.C. Wentworth built a slaughter house here in 1820, SG, 1 April 1820.
3 Government and General Order, 8 April 1815.
4 Government and General Order, 6 October 1810, HRNSW, 7, p.429.
5 HRA, 8, p.341.
edifice seemingly efficient and useful, but, as it was held to
"frighten the horses" and was a danger to theatre patrons, the government
refused to grant the theatre a licence unless it was removed. It was
removed in 1831, and Levey re-erected it on a land grant on the South
Head Road.¹

Less capricious perhaps were part of the government regulations
promulgated after the legalisation of distillation at the end of 1820.
These regulations were partly for nuisance prevention, but were advisable
considering the nature of the population and its propensity for the
"ardent spirits". In this case, the government stipulated that stills
were to be erected in houses "distant not less than 100 yards from any
other House".²

Most of the legislation the government enacted, however, dealt
with slaughter-houses which became an increasing problem as the town
grew in the late twenties. In 1826 a George Street butcher was indicted
for nuisance for keeping a slaughter-house at the back of his premises
"by which an unwholesome smell was caused",³ and two years later a
Presentment of the Sydney Grand Jury suggested that slaughter-houses
"ought either to be in the suburbs, or near the waterside, to prevent
their being rendered intolerable to people who live in the centre of the

¹ SG, 11 January, 9 February 1829; Australian, 6 February 1828; Sydney
Monitor, 5 December 1829; Sydney Herald, 9 May 1831; B. Levey to Colonial
Secretary, 20 November 1830, CSL (Land) [2/2094].
² SG, 10 February 1821 (supplement).
³ SG, 31 May 1826.
In 1830 the Legislative Council passed an Act (11 Geo. IV, No.4, 1830) compelling all slaughter-houses to be within twenty yards of a creek, river, or high-water mark. In all, between the years 1830 and 1851, eleven Acts of Council were passed regulating the slaughtering of animals in Sydney. In the 'forties attention was also focused on other and newer noxious trades because, from 1844 onwards, boiling-down establishments made their presence felt on the perimeter of the city. A select committee of the Legislative Council was appointed in 1845 with a view to modernising the previous acts on the slaughtering of cattle passed before the advent of boiling-down, and in 1848 another select committee was appointed "to take into consideration the expediency of removing slaughter-houses beyond the boundaries of the City of Sydney".

By this time slaughter-houses were concentrated mainly in Sussex Street on Darling Harbour and along Black Wattle Creek to the south-west of the town (Glebe) as a consequence of the 1830 Act. However, large numbers of sheep were still slaughtered in butcher shops in the middle of the town and piggeries (making use of offal) and boiling-down

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1 Australian, 23 January 1828; see also Australian, 19 March 1828 and letter of Sir John Jamison to Governor Darling, 6 December 1828, in Sydney Monitor, 20 December 1828, p.1437.

2 PGSNSW, 1824-74, pp.190-4. This act originally was to last until 31 May 1832 but it was continued by the acts 2 Will. IV. No.15 and 4 Will. IV. No.15. It was virtually repealed by another act in July, 1834, but the same restrictions on location applied. PGSNSW, 1824-74, pp.480-4.

3 VPLC (1845), pp.559-79.

4 VPLC (1848), pp.405-54.
establishments were attached to most Sussex Street slaughter-houses.\(^1\) The committee's report recommended the relocation of slaughter-houses and the establishment of yet another government venture, a public slaughter-house at Glebe Island. Darling Harbour was found to be an unsuitable location because reclamation and encroachments meant that blood and other impurities could not be carried further than the mud-flats which, when exposed to the sun at low tide, produced an unspeakable aroma. The committee also found that 66 of the 78 slaughtering shops within the city were offensive to nearby residents and recommended changes regarding the movement of cattle through the now more populous city streets.\(^2\)

All this diligent, if somewhat indelicate, enquiry led to an Act of Council in 1849 (13 Vic. No.42) which laid down that licences would not in future be granted for slaughter-houses within the city or within two miles of the city limits, and forbade the businesses of fellmongering and boiling-down in the city.\(^3\) This Act also concerned itself with other noxious industries and from 1 January 1860, prohibited in the city tanning, currying, and the boiling of tallow and tripe. The Act was amended by several later ones, the most important being 14 Vic. No.30 (1850) which imposed a penalty of up to £50 for breaches of the regulations regarding fell-mongering, slaughtering and boiling-down or for carrying

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\(^1\)Minutes of Evidence taken before the Select Committee on Slaughter-Houses, \textit{VPLC} (1848), p.426, p.423, p.435.


\(^3\)PGNSW, 1824-74, pp.2062-4.
on "any other trade or manufacture of an obnoxious or unwholesome
core dangerous to the health of the inhabitants". Magistrates were
to determine the meaning of "obnoxious or unwholesome" and an
interpretation clause stipulated that the term "slaughter-houses" was
to include boiling-down establishments.¹

The restrictive legislation against noxious trades was a response
to a real need and to a public that was not slow to point out the
misdemeanors and inconsiderateness of the manufacturers in their midst.
The legislation led to a change in the overall pattern of the location
of industry. The Acts of 1849-50 had the general effect of removing
wool-washing, fellmongering, meat-killing, and boiling-down to the
outer suburbs, particularly to the flat waste land south of Redfern
in the Botany area, along Shea's Creek and on the Lachlan Swamps.²

The effects of this legislation is visible even today to visitors to
Sydney who fly into Australia's busiest overseas air terminal. However,
the unsavoury odours were not completely dispelled by formal legislation.
A correspondent to the Sydney Morning Herald in February 1851 lamented
the fact that the amended act of 1849 "remained a dead letter".³ This
appeared to be so, for at this time two large slaughter-houses were
still operating in Sussex Street between King and Bathurst Streets;

¹ PGSNSW, 1824-74, pp.2173-8.
² J.S. Adams' "Plan of the Country between the Old South Head Road and
Botany Bay Shewing the Lachlan and Other Swamps, 1853" shows three wool­
washing and two boiling-down establishments in this area.
³ Letter to editors of SMH, 6 February 1851.
Barker's mills which issued forth "immense volumes of opaque smoke" and Allen's soap works also were held to be troublesome.¹

The government's role in determining the location of industry was thus an important one before 1850. Its role was accentuated in the second half of the nineteenth century as the city and suburbs expanded. However, the stage was never reached as it was in the 1880's, when the government was forced to consider special areas for noxious trades,² though there was at least one request in the 'fifties by a manufacturer for it to do so.³

The government's role in the protection of local manufacturers was disinterested and minimal. From time to time there were enthusiastic requests from individuals to place duties on certain products such as beer, leather and tobacco, but little or no notice and certainly no action was taken by the government. The only product, apart from spirits, that in any sense could be said to be protected by heavy import duties for a time appears to have been tobacco,⁴ and this was, as in the case of spirits, purely for revenue purposes. Protection had not yet become the embryonic political issue it was in the 'fifties when manufacturers, including W.B. Allen and W.M. Alderson, formed in 1857 the first colonial

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¹ SMH, 1 February 1851.
³ See F.M. Stokes (a soap manufacturer) to Secretary for Lands and Works, 30 August 1859. [NSWA, 59/3594.]
⁴ SG, 16 June, 21 November 1825; Australian, 21 February 1827.
Of necessity the government had become involved in influencing the incidence, nature, and location of manufacturing in Sydney. After the penal colony phase passed in New South Wales the government gave up its role as an active manufacturer, but it remained important in influencing the location of manufacturing through its restrictive legislation on the location of noxious trades. To this residual role was to be added another important positive role in the second half of the nineteenth century: the politically contentious one of protector or non-protector of local manufactured products.

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1 SMH, 24 February; 5, 11 March 1857.
Chapter 4

THE MANUFACTURERS

Who were the pioneer manufacturers of Sydney? To what social class did they belong? Were they trained and skilled in their respective callings? Where did they obtain their capital? Did they possess any social and political significance as a group? These are some of the questions which this chapter attempts to answer.

The first manufacturers who prepared building materials and processed the meagre grain supply were of course convicts, but as time progressed and sentences expired emancipists began to augment the number of workers, self employed workers, and entrepreneurs engaged in manufacturing. Emancipists became a distinct social group in the early 1790's, as many of those sentenced to seven years' transportation had often served several years in the hulks before arrival in the colony.

Typical of the early emancipists was the brewer James Squire (1755?-1822). He had arrived in the Friendship in the First Fleet after having been sentenced at Kingston, Surrey, England in April 1785 to transportation for seven years. Apart from his pioneer work in brewing and hop cultivation, which has been noted in Chapter 1, Squire was, of necessity, also a farmer who regularly supplied meat to the government stores. By 1817 he had about 1000 acres adjacent to his brewery at Ryde

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1The following account of Squire's activities is taken from my article on him in ADB, vol.2, pp.467-8.
which had been acquired from impoverished or dissolute settlers of the neighbourhood for whom Squire often acted as banker and moneylender. Industrious and community-spirited, he was a popular figure among the emancipist class. According to the artist and fellow emancipist Joseph Lycett (fl.1814-1825)

He was...universally respected and beloved for his amiable and useful qualities as a member of society, and more especially as the friend and protector of the lower class of settlers. Had he been less liberal, he might have died more wealthy; but his assistance always accompanied his advice to the poor and unfortunate, and his name will long be pronounced with veneration by the grateful objects of his liberality.¹

Like many other emancipists who stayed on to make their fortunes in the colony, Squire had left a wife and family in England and had another family of eight children in the colony to whom he left by far the greater part of his worldly goods. Squire's youngest daughter married Thomas Charles Farnell (1800-1834), a free settler, who worked the brewery for a time in the late 'twenties; a grandson, James Squire Farnell, became premier of New South Wales in 1877-78.

Many of the brewers, and, of course, most of the illicit distillers, were emancipists like Squire. In the 'twenties that intelligent and acute observer, Peter Cunningham, was of the opinion that "all the distilleries, nearly all the breweries, and the greater portion of the mills and manufactories [were] owned by them".² Robert Cooper (1776-1857), one

¹J. Lycett, Views in Australia.... (London 1824), n.p.
²P. Cunningham, Two Years in New South Wales, vol.2, p.137.
of the first licensed distillers, was an ex-convict. Convicted of receiving stolen goods, he had arrived in the colony in 1813. In January 1818 he was granted a conditional pardon; in the 'twenties he was operating a distillery and in 1830 opened a brewery as well. Samuel Terry (1776-1838), who built the Albion Brewery, the largest in Sydney for many years, was an emancipist as also were many of the earlier brewers like Thomas Rushton (c.1774-1822), Thomas Clarkson (c.1758-1824), Nathaniel Lawrence (d.1826), and James Wright (fl.1814-1852).

Cunningham was probably not far wrong when he spoke of the greater portion of "mills and manufactories" being owned by emancipists, especially when a "manufactory" was usually little more than a room of a house employing one or two persons at the most. James Blanch (1784-1841) who set up the first private foundry in 1821 was an emancipist; he had arrived in January 1816. The ropemakers, Samuel Pugh (fl.1803-1828) and Jacob Wyer (1774?-1835), "for many years the principal ropemaker of Sydney", were emancipists, as were Henry Kable (1763-1846), boatbuilder and brewer, James Underwood (1776?-1844), boatbuilder and distiller, and Andrew Thompson (1773?-1810), who set up a brewery, tannery and salt pans. Furthermore, the manufacturing activities of the emancipist entrepreneur Simeon Lord (1771-1840) lend further credence to Cunningham's observation. Lord operated at various times a hat manufactory, flour mill, tannery, and woollen mill.

1 ADB, vol.1, p.246, article on Robert Cooper.
2 Census of 1828 (ML).
3 Sydney Herald, 26 November 1835.
William Moffitt (1802-1874) like Simeon Lord was another successful emancipist. He had been sentenced to seven years' transportation in 1823 for stealing tea and had arrived at Sydney in the Guildford in 1827. When his sentence expired he set up business as a bookbinder, engraver, and copperplate printer in King Street in 1833. Moffitt was a fine craftsman and was responsible for hundreds of engraved letter-heads and advertisements which found a market as far afield as Van Diemen's Land and New Zealand. These decorative engravings of shops and factories, some of which were by his own hand, give a unique and excellent picture of the commercial and industrial life of the colony. Unlike many other manufacturers and merchants Moffitt was not interested in agriculture or grazing: instead, he invested in city property. On his death his estate was valued at £230,000.¹

The Frenchman, François Girard (1792?-1859) was another enterprising emancipist, though his career was not what one would call a complete success.² He had gone to England after the Napoleonic Wars and found employment as a teacher of the French language. In February 1820 he was convicted of stealing a watch and sentenced to seven years' transportation. He arrived at Sydney in the Agamemnon in September of the same year. Girard received a conditional pardon in 1825 and at once embarked upon

¹ADB, vol.2, pp.242-3.
an energetic and colourful career as baker, miller, shopowner, builder, timber merchant, and pastoralist: enterprises which reflected the progressive economic development of the colony. All of Girard's ventures were on the grand scale and he was continually forced into quarrels with officialdom and litigation to protect his interests. Even his bankruptcy was on a grand scale. In this, according to his biographer, Girard was "doubly distinguished by the magnitude of his debts, running into thousands of pounds, and the almost ludicrous extent of his official liquidity - £12".¹

Considering the nature of the society, it was natural that emancipists would constitute a large part of the private manufacturing sector, whether self-employed or in the entrepreneurial role (as in the notable cases of Terry and Lord); but free settlers were just as quick to enter the field. James Wilshire (1771-1840) was one of the first and certainly one of the most successful to start a manufactory. He arrived in the colony with his wife in the Royal Admiral in November 1800 and was appointed to the Commissary department.² In 1803 he established his tannery and soap-making business. He was forced to resign from the Commissary department in 1812 in consequence of an order from the home government forbidding civil officers from conducting private business, and on retirement from government service he devoted

¹Ibid., p.251.
²Memorial of James Wilshire to Macquarie, 1821, CSIL, Memorials [4/1827].
more attention to manufacturing. As well as all classes of leather, for both the government and general public, he manufactured candles, glue, and parchment and integrated his activities by establishing his own slaughter house at Darling Harbour in 1826. Wilshire, well-respected, was a supporter of established authority. He married Esther Pitt who, through her mother, was a connexion of Lord Nelson. This assured other indulgences by which Wilshire acquired land at Lane Cove and Liberty Plains (Strathfield). His sons James Robert (1809-1860) and Austen Forrest (1811-1889) took over the flourishing business after his death in September 1840. James Robert Wilshire entered politics, becoming the second mayor of Sydney in 1844, a member of the Legislative Council and also of the first Legislative Assembly. James Wilshire's life is a success story for he established one of the longest-lived (1803-1861) manufacturing firms in Sydney in the nineteenth century and which returned enough to enable him and his sons to live almost entirely, if not wholly, on its profits.

Wilshire had brought with him to the colony some property, capital and experience but another free settler, John Dickson (1774-1843) brought a great deal more of each. A Scotsman, he and his father had

1SG, 1 February, 27 September 1826.
2SG, 10 September 1840.
4See "Memorandum from Accounts of the late firm of J.R. and A.F. Wilshire" ...from the year 1852 to 1857 inclusive, appendix to Select Committee on the Petition of Mr Austen Forrest Wilshire, VPLA (1865), 2, pp.843-4.
probably been associated with the eminent Scottish engineers, James Watt and John Rennie. He had built steam engines in London where he patented two devices associated with steam power.\(^1\) Seeing the opportunities, he applied to the Colonial Office to be allowed to settle in New South Wales. He arrived in Sydney in the *Earl Spencer* in October 1813 bringing with him goods and machinery (including a steam engine) valued at about £10,000. Dickson introduced the industrial revolution to the colony when his steam flour mill began operations in 1815 and he diversified his manufacturing activities when he added a brewery and soap and candle works to his mills on Darling Harbour.

John Dickson also held large land grants in the counties of Cumberland and Argyle; by 1828 he had 17,000 acres of land stocked with 3000 cattle and 2000 sheep.\(^2\) His manufacturing and pastoral activities proved successful, for in 1834 he sold out and retired to London where he died a wealthy man in 1843.\(^3\)

Other free settlers who set up manufacturing businesses came to the colony as apprentices. One such was the successful miller, Thomas Barker (1799-1875), who had been articled to John Dickson and arrived with him in 1813. Barker won repute as a skilful engineer and millwright and built a large cloth mill adjacent to his extensive flour

\(^1\)Dickson papers in possession of H.B. Turner, Killara, N.S.W. See my article on Dickson in *ADB*, vol.1, pp.306.
\(^2\)Census of 1828.
\(^3\)SMH, 25 November 1843.
mills near the corner of Sussex and Bathurst Streets. Like his former employer, Dickson, he acquired much land and wealth; by the end of 1834 he had done so well that he was able to retire from the milling business which he let to his brother for £2000 a year. Another who arrived as an apprentice was the hatter Reuben Uther (1791-1880). The son of a furrier, he had been apprenticed in London in 1806 to Simeon Lord and arrived in Sydney the following year. In 1815 he established a hat factory which continued operations until 1851. In the 'thirties he moved into a retail business as well and later acquired valuable city property. On his death in 1880 his estate was valued at £250,000. Some other successful manufacturers either came to the colony very young or were born in New South Wales. James Byrnes (1806-1886) arrived with his father, who was in the New South Wales Corps, in 1808 at the age of two. Together with his brother William (1809-1891) they established large flour and woollen mills at Parramatta in the 'forties.

But such cases appear to be the exception. Most of the larger and successful manufacturers appear to have had overseas experience and

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2 SMH, 3 March 1851.
4 See my article on the Byrnes brothers in ADB, vol.3, pp.322-3.
arrived in the colony with some capital as well as a spirit of enterprise.

The migration of capital, skill, and enterprise from the mother country to a colony is common in the early stage of secondary industry in a new country. There are some interesting examples of this in New South Wales. Manufacturers like the Russell family, John Struth, W.M. Alderson, W.B. Allen, James Beuzeville, the Tooths and Moreton are good examples of this in Sydney during the 'thirties and 'forties.

Robert Russell (1789-1840) had an engineering works at Kirkaldy, Fifeshire, Scotland. In 1832, after a period of economic depression, he and his four sons, Robert, Peter, John, and George (1822-1903), migrated to Tasmania where he set up business in Hobart. After a few years, when there seemed to be no prospect of expanding their prosperous but small firm, the Russells moved to Sydney where the market appeared to be more promising. Peter Nicol Russell (1816-1905) joined his brothers Robert and John in an ironworking business in Sydney in 1838 and in 1842 he took over Blanch's foundry. His brothers ventured into shipbuilding and shipowning while he expanded his business and built the very successful Sydney Foundry and Engineering Works in Sussex Street which continued operations until 1874.¹

¹This account of the Russell family is based on some notes by F.M. Taylor located in the archives of the University of Sydney and the article on P.N. Russell in The Australian Encyclopaedia (Sydney 1958), vol.7, p.524.
John Struth (1804-1886), like the Russells, was an engineer and a Scot. He served an engineering apprenticeship at Durham where he later worked for a time, and on his arrival in Sydney in September 1832 he found employment with Thomas Barker. By 1840 he had saved enough to erect his own ironworks and wharf on Darling Harbour where he undertook a wide range of marine and mechanical engineering tasks.  

William Maddison Alderson (1814-1884) was born at Newcastle-upon-Tyne. After about sixteen years' experience in the leather trades in England he migrated to New South Wales in 1842, and in 1844 established a tannery which became one of the largest in the colony.  

William Bell Allen (1812-1869), a native of Northern Ireland, also appears to have had training as well as a little capital before he arrived in Sydney with his family in 1842. He immediately established a soap and candle works in Dickson's old mill in Sussex Street, which developed into one of the largest of its kind in the colony and was carried on by his sons William (1835-1915) and Alfred Allen (1839-1917).

James Beuzeville (1809-1887), the pioneer sericulturist, brought with him much knowledge and experience, though little or no capital, when he came to Sydney in 1848 and set up his Experimental Silk Institution at Eastwood. The Beuzeville family had been refugees from France in the early eighteenth century and had established a silk weaving

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firm in London. In 1827, after being in operation for a century in the same premises at Spitalfields, the firm failed and Beuzeville and his father joined the firm of Courtauld & Co. of Braintree. He spent eight years in the various silk producing countries of Europe, and some time in Spain, when in 1848 he relinquished the management of one of Courtauld's concerns there and emigrated to Australia.¹

John Tooth (fl.1828-1843), the founder of Tooth and Company, which is still the leading brewery in New South Wales, was another enterprising free settler. He came to the colony in the Bencoolen in 1828 and set up business as a general merchant and commission agent in Spring Street. In the same year he received a primary land grant of 2560 acres in the Hunter Valley, which indicated that he could prove capital of at least £2000.² In 1834 he saw the possibilities for brewing and taking an experienced brewer, Charles Newnham, into partnership he set up the Kent Brewery the following year. Tooth retired from active management of the brewery in 1843 and went on the land. The brewery was leased to his nephews Robert (d.1893) and Edwin (1822-1858), sons of Robert Tooth, a London brewer.³

John (Morston) Moreton (fl.1820-1844) who set up Moreton & Sons' pottery on the Surry Hills "had considerable experience in Staffordshire

¹ADB, vol.3, pp.159-160.
²HRA, 14, p.672.
in the Pottery trade with Mr Wedgewood".  

Moreton may have been a convict, but his three sons came out as free persons.

There is little precise evidence of the amount of capital invested by manufacturers in their ventures, but the capital employed was both accumulated locally and imported. Some enterprising emancipists made tidy fortunes from commercial speculations and throughout the period, as we have seen, there was an increasing flow of free settlers to the colony, some of whom brought in capital. Emancipists like Simeon Lord made large profits from trading ventures and from the South Sea fisheries, which they partly invested in manufacturing; while some free settlers like Dickson, the miller, brought considerable capital equipment from England. Others, like Gregory Blaxland (1778-1853) and T.W.M. Winder (1789?-1853) diverted capital from other ventures to manufacturing because of partial failures in grazing or commercial pursuits; Blaxland turned to agriculture, established a brewery and experimented in viticulture, while Winder, because of the "disastrous condition of the Commerce of this Colony", sought and gained permission to establish a water-powered flour mill on the Lachlan Swamps.

It is extremely difficult to ascertain the amount of capital invested in manufacturing at any period, but Wentworth in 1819 speaks of many

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1 SMH, 15 August 1844.
2 Census of 1828.
manufacturers as having "considerable capitals" invested in their enterprises and estimates the total amount of capital "invested in colonial manufactures" at about £50,000. This figure may be a fairly reliable informed guess when taking into consideration the capital either imported or invested by some of the largest operators. James Wilshire embarked from England with considerable goods and capital, John Dickson brought assets into the colony to the value of almost £11,000, and John Blaxland (1769-1845), brother of Geoffrey, who arrived in 1807, had agreed with the British Government to invest £6000 in New South Wales in return for a land grant. He erected a small woollen factory, a windmill, lime kilns and a salt works on his property at Newington, but, of course there is no doubt that the greater proportion of his investment, like his brother's, was in grazing. The total amount that the wealthy Simeon Lord had invested in his hat, leather, woollen, and soap ventures is not definitely known; and although in 1816 he claimed to have expended "upwards of £8000 Sterling" in establishing his woollen manufactory, this figure is most probably an exaggeration so that he would be in a stronger position to solicit further indulgences from Macquarie.

1 W.C. Wentworth, A Statistical, Historical, and Political Description of the Colony of New South Wales (London 1819), p.111.
2 Memorial of James Wilshire to Governor Macquarie, 1821, CSIL, Memorials [4/1827].
3 Evidence of John Blaxland to Commissioner Bigge, 18 August 1820, BT, 5, pp.2135-7.
4 S. Lord to Macquarie, 15 July 1816, CSIL, Bundle 10, vol.16, p.84 [4/1735].
Melville wrote of Van Diemen's Land in 1851 that "manufactories that require considerable capital have not yet been thought of", but this definitely could not be said of Sydney. A petition of merchants and manufacturers to the Legislative Council in 1851 claimed that they had "embarked large capitals in manufacturing and other pursuits", which is borne out by the promotion of the public companies already mentioned, larger partnership ventures, and some incidental evidence as to the extent of the capitalization of some mills and manufactory.

Business archives are unfortunately rare throughout the nineteenth century, but some references to capitalization (although often of doubtful accuracy) are made in contemporary accounts. For example, Martin states that

Mr. R. Cooper has expended nearly 20,000l. on his distillery. The firm of Messrs. Daniel Cooper and Levey have expended even larger sums in erecting steam engines, mills, etc. . . .

Robert Cooper himself claimed in 1838 that he was induced to embark his entire capital "amounting to no less a sum than one hundred thousand pounds, as a Distiller", though this would appear to be an exaggeration. Another example as to the degree of capitalization in manufacturing is afforded in the cost of the new, larger windmills erected in the late

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1 H. Melville, op. cit., p. 267.
2 VPLC (1851), Second Session, 2, p. 69.
3 The Fitzroy Iron Works also became a company by deed in September 1851. R. Else Mitchell, RAHSJ, 26 (1940), p. 422.
5 R. Cooper, Appeal of Mr. Robert Cooper against the prohibition of Colonial Distillation (Sydney 1839), p. 5.
'twenties - both Levey's and Hyndes' cost nearly £2000 each.1 Again, according to Atkinson in 1826, Wilshire employed "a very considerable capital in the tanning business",2 and this is confirmed by evidence presented before a select committee of the Legislative Assembly some years later when it was disclosed that Wilshire's tannery in 1843 (including land) was valued at £6000.3 John Struth, the Russells, and the Tooths all obviously brought considerable capital, and also practical experience and skill into the colony: but there is no evidence as to the exact amount of capital.

The insolvencies of certain manufacturers also often give some idea of the capitalization and scale of operations. Manufacturers, like the importers and merchants, also suffered during the economic crisis of the early 1840's. Indeed, one of the first clear signs of the depression was the difficulty experienced by flour millers as well as farmers:4 the large milling firms of Dodds, Blackett and Aird, and Barker and Hallen both became insolvent late in 1840.5 The case of another miller, François Girard, has already been referred to above.

Table 7 shows the main manufacturers who became insolvent. There

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1 CSL (Land) [2/2094] and [2/1751]. Cf. the statement in the Australian, 21 May 1830 that Levey's mill cost £4000.


3 VPLA (1865), 2, p.838.

4 S.J. Butlin, op.cit., p.320. Sydney wheat and flour prices fell rapidly in 1838-40; wheat fell from 22s. per bushel in August-September 1839 to 6s.11d. a year later; flour prices followed a similar collapse from £75 per ton in September 1839 to £20 per ton at the end of 1840. Butlin, loc.cit.

5 HRA, 21, p.199.
were also a fair number of tradesmen, such as coopers, wheelwrights and carpenters, who became insolvent for small sums, often less than £100. A "Bankruptcy Analysis" published in the Sydney Morning Herald in August 1844 gave the occupational breakdown of 1169 bankruptcies (presumably for the years 1842-43). This list included 31 corn merchants and dealers, 24 brewers, 16 woollen manufacturers and dealers, 10 worsted manufacturers, 19 ironfounders, 14 coachmakers, 6 engineers, 3 coopers, and 2 fellmongers. It would appear from these figures that a large number

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1 Source: Bankruptcy notices, published in the Sydney Herald, February-September 1842.

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TABLE 7

INSOLVENT MANUFACTURERS: 1842

<table>
<thead>
<tr>
<th>Date filed</th>
<th>Name</th>
<th>Occupation</th>
<th>Debts</th>
<th>Deficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Feb</td>
<td>George Blackett</td>
<td>Miller</td>
<td>£14,609</td>
<td>£ 985</td>
</tr>
<tr>
<td>16 Feb</td>
<td>James Wright</td>
<td>Brewer</td>
<td>8,774</td>
<td>8,694</td>
</tr>
<tr>
<td>18 Feb</td>
<td>William Bourne</td>
<td>Engineer</td>
<td>999</td>
<td>322</td>
</tr>
<tr>
<td>19 Feb</td>
<td>John Korff</td>
<td>Shipbuilder</td>
<td>5,673</td>
<td>1,788</td>
</tr>
<tr>
<td>8 Mar</td>
<td>J. Nicholson</td>
<td>Shipbuilder</td>
<td>1,068</td>
<td>989</td>
</tr>
<tr>
<td>14 Apr</td>
<td>Robert Russell</td>
<td>Engineer</td>
<td>1,083</td>
<td>960</td>
</tr>
<tr>
<td>26 Apr</td>
<td>William McLaughlan</td>
<td>Coachmaker</td>
<td>1,246</td>
<td>1,096</td>
</tr>
<tr>
<td>6 May</td>
<td>Francois Girard</td>
<td>Miller</td>
<td>4,445</td>
<td>4,433</td>
</tr>
<tr>
<td>2 June</td>
<td>H. Nicholls</td>
<td>Tanner</td>
<td>2,693</td>
<td>2,109</td>
</tr>
</tbody>
</table>

Source: Bankruptcy notices, published in the Sydney Herald, February-September 1842.

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1 SMH, 13 August 1844. According to the SMH this list is taken from Companion to the Almanac for 1844, which is presumed to be a local publication, though no mention is made of it in Ferguson's Bibliography of Australia. The number of insolvencies, 1169, tallies almost exactly with the number Butlin gives for 1842-3, viz. 1168. Butlin, op.cit., p.323.
number of manufacturers became insolvent. However, many of these would be workers or retailers in these occupations and not proprietors. An examination of the bankruptcy lists published from time to time in the press does not reveal an undue proportion of manufacturers. It was the merchants who were caught in "the fervour of speculation" that suffered most.¹ The new insolvency act (5 Vic. No.17), which ameliorated the treatment of insolvents, became operative on 1 February 1842 and there was a rush of insolvencies, especially by merchants and retailers. This new act allowed debtors with any prospect of paying to retain and use their property. The brewer, James Wright, whose insolvency (characterised by a high proportionate deficiency) was typical of the period, was one such insolvent manufacturer who benefited and was soon back in business. Bourne, and Korff, were also soon back in operation.²

The pioneer manufacturers were not a homogeneous group. If one includes within the term "manufacturers" the merchants and landholders who speculated in manufacturing and who were themselves only slightly involved, the category included humble ex-convicts and immigrants who were self-employed, wealthy emancipist entrepreneurs like Simeon Lord and Samuel Terry, well-to-do and successful immigrants like the Wilshires, Russells, and the Tooths, as well as people of a higher social order like Sir John Jamison (1776-1844) and the Blaxland brothers.

¹See also the occupational groups in Butlin, op.cit., p.323, Butlin lists ten groups, but no manufacturing group or trade other than "building workers" is a discrete group.
²According to Low's directories for 1844-45 and 1847.
Manufacturers formed no general associations to further political, economic, or technical ends. This is not surprising considering their social composition as a group and, more significantly, the fact that manufacturing was of less importance than stock raising and commerce. The land question and the introduction of the free institutions of England into the colony were the most important political issues in the 'thirties and 'forties. As early as 1822 the Agricultural and Horticultural Society of New South Wales was formed,\(^1\) the pastoralists and stock-owners formed associations between 1837 and 1844, and an Australian Patriotic Association to agitate for representative government and trial by jury was formed in 1835; but there were no issues, threats or challenges which tended to unite the manufacturers as a whole before 1850.

In 1851, however, some manufacturers, concerned as to the adequacy of Sydney's water supply, joined with the merchants in requesting the government to replace the precarious supply from the Lachlan Swamps with a larger and more reliable scheme from the Cook's River or the Botany Swamps.\(^2\) Previously only small groups or members of a particular trade had united for a specific purpose: in 1818 Simeon Lord and James Wilshire petitioned the governor, though in vain, for some protection of standards in the leather industry,\(^3\) and in 1840 a meeting was called in Sydney by

\(^1\)Jamison was president of this society for many years and his annual addresses to it usually took the form of detailed accounts and criticisms of the state of manufactures as well as of the primary industries. ADB, vol.2, p.11. See for example his presidential address for 1830, part IV of which is published in SG, 18 October 1830.

\(^2\)VPLC (1851), Second Session, 2, p.69.

\(^3\)Judge Advocate Wylde to Macquarie, 9 October 1818, CSIL, Bundle 12, vol.21, pp.28-42 [4/1741].
employers in the metal trades to establish a "House of Call" and registry for tradesmen that would enable them to obtain good workmen.¹

But manufacturers, even those involved in noxious trades such as tanning, soap-making and tallow boiling, either did not combine or were ineffective in their protests when restrictive legislation was passed in 1849-50 forbidding them from carrying on their trades in the city.²

If one excludes Jamison, who was a member of the Legislative Council from 1837 to 1843, and James Byrnes, who was an elected member of the same body from March 1850 to June 1851, manufacturers had no representation in parliament before the 'fifties. It was not until the second half of the nineteenth century, after the advent of responsible government in 1856, that manufacturers became a little more active in politics. Thomas Barker, J.R. Wilshire, and James Byrnes were all members of the first Legislative Assembly in 1857-58, but this is of little significance considering the large numbers that were elected in the enthusiastic early days of responsible government. Barker and Wilshire had already been members of the upper house and Wilshire returned to the Council in 1858. James Byrnes served several terms in the Assembly in the 'sixties and 'seventies and in 1866-68 and 1870-72 he was secretary for public works in the second and third Martin ministries. His brother,

¹ Sydney Herald, 18 March 1840.
² Of course the Acts were not to come into force until January 1860; nevertheless the manufacturers concerned do not appear to have combined for a protest against this legislation until 1859!
William, became a life member of the Council in 1861. Alderson was, from August 1882 until his death in 1884, a member of the Legislative Council, where his protectionist views led him to an unequivocal espousal of the cause of the employer and freedom of contract, and, as already mentioned, his friend and political associate W.B. Allen became the first avowed protectionist to sit in the New South Wales parliament in 1860-64.¹

If certain manufacturers became minor figures in colonial politics in the second half of the century some, also, were to join the ranks of the affluent and bestow their patronage and philanthropy on the institutions of the city. Both Barker and Alderson, for example, devoted much time to the appropriate charitable institutions of the day, and no less than three pioneer manufacturers of the 'thirties and 'forties became benefactors of the University of Sydney. Thomas Barker's gift of £1000 in 1853 for a scholarship for proficiency in Mathematics was the first direct benefaction to the University;² John Struth gave £1000 to the University for a scholarship in engineering in 1884;³ while Peter Nicol Russell towards the end of his life gave £100,000 to found an engineering school at the University of Sydney.⁴

¹The details of parliamentary careers are to be found in New South Wales Parliamentary Record, 1824-1956 (19th ed.), vol.1, Sydney, Govt. Printer, 1957.
²ADB, vol.1, p.58.
³ISN, 15 February 1886.
⁴The Australian Encyclopaedia (Sydney 1958), vol.7, p.524. He gave £50,000 in 1896 and a further £50,000 in 1904.
The pioneer manufacturers of Sydney and indeed the colony of New South Wales came from both the emancipist and immigrant classes. Although many emancipist entrepreneurs established factories of all kinds, it was the immigrants with capital and experience who finally dominated the private manufacturing sector of the economy. Generally speaking the larger manufacturers did not confine their business operations to this one activity, but carried on importing, retailing and grazing as well. Simeon Lord and Thomas Barker are cases in point: each could, and indeed preferred to be regarded as merchants or landholders. However, there were numerous emancipists - the great majority of whom must forever remain anonymous - who were self-employed in a very small way, together with some immigrants, like the Russells, who could be said to have specialised solely in manufacturing.

The period 1788-1850 saw attempts, some of which were of course unsuccessful, to manufacture almost every conceivable product for which there was the slightest demand. This is not surprising considering that a fair proportion of transportees had had some experience in manufacturing. Robson's work on a sample of some 6000 convicts has shown that about 25 per cent of male convicts had been employed in some manufacturing occupation before transportation to the colony.¹ From the biographies and brief particulars of some of the manufacturers given above it appears that the early manufacturers were either of English or Scottish origin.

Robson's work supports this general observation, at least in the case of the emancipists. Sixty per cent of the convicts were of English or Scottish origin, and Robson shows that about 36 per cent of the Scots and about 30 per cent of English convicts had some background in manufacturing before transportation. This compares with only about 15 per cent of the Irish convicts.\(^1\) The Irish convicts were generally unskilled in trades, except perhaps brewing and illicit distilling and there are no notable examples of Irish immigrants establishing themselves in manufacturing as did the Scots. The Scots or persons of Scottish descent seem to have provided a disproportionate number of immigrant manufacturers.\(^2\)

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\(^1\)Ibid., pp.184, 190.

\(^2\)D.S. Macmillan in his definitive study of Scottish emigration to Australia does not make this point, and provides no further examples of Scots than those already mentioned. See D.S. Macmillan, *Scotland and Australia, 1788-1850* (Oxford, 1967).
Chapter 5

FACTORIES, LABOUR, AND THE ORGANISATION OF LABOUR

The "manufactories" of the period 1788-1850 were factories in the present day sense of the word, though not all employed machinery. Some, like Lord's Woollen Mill, Wilshire's tannery, the Sugar Refinery and the Gas Works, employed as many as thirty or forty regular hands. But others consisted simply of a master tradesman and a few labourers or apprentices. When available, the police magistrates' returns for the annual Blue Book (the forerunners of the Statistical Registers) do not give the number employed in each factory, and so it is only by incidental evidence that figures can be ascertained. Often, at best, only informed guesses can be made. However, it is certain, that a factory system had developed by the 'forties. By this time a fair number of labourers were often congregated under the one roof, a development that facilitated the organization of labour.

Many factories were impressive structures. None, except for part of the Canterbury refinery, are in existence today. However, from the evidence of contemporary prints, engravings, and the few base plans that exist for some buildings, the major industrial establishments were structures that any contemporary city might well be proud. (See Plates V-VIII).

The term "factory" for statistical purposes in New South Wales was not defined until the passing of the Factories and Shops Act of 1896 (60 Vic. No.37). Under this act a factory was a building or place in which four or more persons were engaged in manufacturing, or alternatively, a building or place where steam or other mechanical power was used in a manufacturing process.
Some of the multi-storied windmills, the Sugar refinery, Struth's foundry, the Albion, Australian, and Kent breweries, the Brisbane Mills and Barker and Hallen's flour mill were all large buildings or collections of buildings. The refinery and Barker and Hallen's mills had been carried to four storeys. Impressive too, was the degree of mechanization. By 1840, ten steam engines were supplying a total of 188 h.p. to factories in the town;¹ the smallest engine developed five and the largest thirty-six horse power. The Canterbury refinery was the largest single industrial establishment in terms of power employed: a 40 h.p. steam engine powered the mill and two 12 h.p. engines supplied the power for loading sugarcane to the top floor of the mill.² After the refinery, flour mills utilized the most power. Barker and Hallen's mill had two engines, one of 30 horse power. The engines in the other flour mills usually developed between 40 and 50 h.p. and were often used to power saw mills as well. In contrast, flour mills in the country were of smaller capacity, usually about 12 h.p.³

Large factories, however, were the exception: the usual or more representative manufactural unit was often no more than a backyard shed. A brewery advertised for sale in 1832 was perhaps more typical: it consisted of a shed forty feet by sixteen.⁴ Though there were some large

¹PMR for 1840. This excludes the Canterbury refinery.
²Reports of the Colonial Architect, etc., 1862, 1866, NSWA [2/637].
³PMR for 1840.
⁴Sydney Herald, 30 August 1832.
factories where people went each day to work, more often the place of business and residence - as in the case of many wholesale and retail businesses - were one and the same building.

However, few factories were specialized in their functions. Some, like Wilshire's tannery exhibited a degree of vertical as well as horizontal integration. But often a complex of buildings or sheds (designated a "mill" or "manufactory") might produce several quite different products. For example, John Dickson's mills in the 'twenties manufactured products as diverse as flour, beer and soap.¹

One other aspect of factory size, organization and location is worth noting. The village of Canterbury around the sugar works (Fig. 6), and perhaps to a lesser extent Jamison's woollen mill and special housing of Scottish weavers near Penrith, were the colonial equivalent of the factory villages that had emerged in England by the 'forties. The wider adoption of steam power by the 'forties, as Ashworth points out, made the diffusion of industry "a matter more of option than necessity".² So it was natural that there was a tendency to duplicate the English experience in this regard. Unlike the case of the English factory villages, however, these "villages" were not models for future experiments and philanthropic reforms.

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¹SG, 15 August 1828.
While it is comparatively easy to obtain some fairly reliable figures for the number of factories and the number of persons employed in a few of them, it is impossible to estimate accurately the total employed in manufacturing. Throughout the foundation years of the colony manufacturing accounted for only a very small proportion of the workforce — both convict and free. Rough estimates, however, are possible for some years. According to the General Muster of 1800, about nine per cent of the total population of about 5000, or 21.6 per cent of the "effective" male labour force was engaged in manufacturing and construction.¹

The relatively high number engaged in building jobs was to be expected in a pioneering society. The first real census was held in November 1828. This census gives each person’s occupation, but no indication as to whether he was self-employed, an employee, or even working at his calling. No analysis or breakdown of occupational groups is given nor is it possible, as many persons are listed as simply "labourer".

Censuses were held in 1836, 1841 and 1846, but even the 1851 census, the most detailed taken to that date, is of little use as it classifies about 35 per cent of Sydney’s total workforce under the one category "Commerce, Trade, and Manufactures".

¹The colony’s population in August 1800 was 4942. The percentage of the population and workforce engaged in manufacturing are as accurate as the broad classifications of the Muster permits, and refer only to free men and convicts not holding land by grant or lease. The "effective" labour force, i.e. the total males, excluding 476 on the civil and military establishment, 388 settlers holding land, together with women and children was 2171. See HRNSW, 4, pp.186-8.
The three main sources of labour in the colony in the period 1788-1850 were transportation, immigration, and natural increase. Convicts constituted the chief source of labour until the mid-'thirties. Until about this time the greater number of workers were assigned servants, and ex-convicts or emancipists. The larger private manufacturers, both emancipist and free, made use of "assigned servants" from the government whose labour they received in return for housing and victualling them. Simeon Lord, for example, had no fewer than twenty such assigned servants employed in his manufacturing ventures during the time of Macquarie's governorship. At the zenith of the assignment system in New South Wales in 1838, 26,000 of the 38,000 convicts in the colony were in private service; the rest were in some form of government service or in penal stations undergoing secondary punishment. After 1835, however, the immigration of free British workers and natural increase produced a significant change in the composition of the population, a change that was further accentuated by the abolition of the transportation system in 1840. At least two manufacturing concerns specially imported skilled labourers from Britain about this time: Jamison's woollen mill in the early 'forties used English and Scottish skilled labourers who were housed on Jamison's estate; and the Australasian Sugar Company brought forty "engineers" and workmen from England (as well as its directors) who were settled in the new "factory village" of Canterbury.

2 Sydney Herald, 13 July 1840.
The apprenticeship system in manufacturing does not appear to have been very well developed until the 'thirties and 'forties. The first indication of it was an advertisement in the *Sydney Gazette* in March 1806: George Pashley, a tailor who lived on "The Rocks", advertised for a youth over twelve "to be indentured five or seven years to a trade that is not laborious".\(^1\) Reuben Uther, the hatter, was indentured by Simeon Lord in London in September of the same year.\(^2\) Generally it appears that only the larger manufacturers took on apprentices. In 1817 Lord advertised for four boys from eleven to thirteen years old to be apprenticed to "the Hatting or Woollen Business";\(^3\) and Wilshire the following year advertised for two boys, fourteen to sixteen years of age, "to learn the Art and Mystery of Tanning".\(^4\) The Constitution Act of 1823 legalised the practice of indentured labour, whereby youths entered into articles of service up to seven years.\(^5\)

As in the case of manufacturing in general, wages, and the employment of industrial workers were greatly affected by changes in the prosperity of the colony as a whole. According to one authority, average money wages of all classes of employees remained fairly constant between 1823-33

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1 *SG*, 16 March 1806.
2 *ADB*, vol.2, p.548. See also *SG*, 29 June, 12 October 1811. There was one earlier request for an apprentice in 1805. This was for a boy to serve on a new colonial vessel. *SG*, 1 September 1805. In 1807 John Blaxland advertised for several young boys, but the nature of the tasks or trades was unspecified. See *SG*, 25 January 1807.
3 *SG*, 19 April 1817.
4 *SG*, 18 July 1818.
and rose steadily in the following years to reach a peak in 1840. After 1840 they declined rapidly and reached their lowest level in 1844. Recovery, however, was quick and by 1847 wages had reached the previous high level of 1836. However, in the late 'forties, they declined: in 1849-50 they were lower than in 1823, though not as low as in the depression of the early 'forties. Over the whole period 1822-1850 real wages may have increased a little for industrial as well as agricultural and domestic workers.¹

During the depression of the 'forties, as the result of a petition of over 4000 citizens, the government set up a select committee in November 1843 to enquire into "the distressed conditions of the numerous unemployed artisans and labourers in the City of Sydney". The committee, under the chairmanship of the Rev. J.D. Lang, examined sixteen witnesses, including six tradesmen and labourers, who testified to the extent of unemployment and the drop in the standard of living for many tradesmen and labourers.

Benjamin Sutherland (fl.1833-1847), an upholsterer and one of the founders of the Mutual Protection Society, told the committee how he and eleven others carried out a survey of unemployment in the city. He said that

The various wards were divided among twelve of us, two going together, we then went to every house that had the appearance of being the abode of a poor working man, and made enquiries, from which the statement was made up, under the following heads,

name, profession, residence, married or single, number of children, how long out of employment, and general remarks; under the latter head we made a note as to the ages of the children, or the state of the family.\footnote{Minutes of Evidence taken before the Select Committee on the Petition from Distressed Mechanics and Labourers, VPLC (1843), p.3.}

The survey showed that over 1200 persons "of the industrious classes" were unemployed and that 2500 women and children were dependent on them. The occupational breakdown of the survey is shown in Table 8. This high figure was accepted by the Committee who were of the opinion that if the survey had been more thorough "the number of the unemployed would have been found considerably greater". Witnesses, who were examined before the committee stated that many had been out of employment for as long as fifteen months and many families in a state of starvation had to dispose of clothing and furniture to survive. Cases cited by Sutherland were typical:

One man we visited, a cabinetmaker, in a most destitute condition; he had five children, the oldest of whom was twelve years old, and his wife said, that for whole days, and on one occasion, for forty-eight hours, the children were without bread.\footnote{Ibid., p.3.} And again,

Alexander Robinson, silversmith, living in Castlereagh Street, is married and has three children; he has been out of work entirely three weeks, and has been only occasionally employed for two years; he has been assisted by his wife's industry, but she is now unable to get anything to do; the place bespoke the most abject poverty; there were only a few articles of furniture, if furniture it could be called, laying about broken and useless, which indicated that they had been in comfortable circumstances; the wife came to the door,...she...hoped that the result of our enquiry would be, that she would be able to get bread for her children, who were crying for
want; the house was very miserable, and the clothes of the woman were very poor and tattered, her gown being so much patched,\(^1\) that it was almost beyond mending, but her person was clean.

### TABLE 8
**UNEMPLOYED IN SYDNEY: 1843**

<table>
<thead>
<tr>
<th>OCCUPATION OR TRADE</th>
<th>NUMBER UNEMPLOYED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenter</td>
<td>119</td>
</tr>
<tr>
<td>Stonemason</td>
<td>57</td>
</tr>
<tr>
<td>Blacksmith</td>
<td>31</td>
</tr>
<tr>
<td>Cabinetmaker</td>
<td>48</td>
</tr>
<tr>
<td>Cooper</td>
<td>3</td>
</tr>
<tr>
<td>Shoemaker</td>
<td>36</td>
</tr>
<tr>
<td>Tailor</td>
<td>47</td>
</tr>
<tr>
<td>Painter</td>
<td>37</td>
</tr>
<tr>
<td>Plasterer</td>
<td>14</td>
</tr>
<tr>
<td>Shipwright</td>
<td>15</td>
</tr>
<tr>
<td>Compositor</td>
<td>2</td>
</tr>
<tr>
<td>Bricklayer</td>
<td>9</td>
</tr>
<tr>
<td>Upholsterer</td>
<td>5</td>
</tr>
<tr>
<td>Engineer</td>
<td>7</td>
</tr>
<tr>
<td>Coachmaker</td>
<td>1</td>
</tr>
<tr>
<td>Combmaker</td>
<td>2</td>
</tr>
<tr>
<td>Labourers of all descriptions</td>
<td>474</td>
</tr>
<tr>
<td>Other handicrafts and trades (including coal miners, penmakers, etc.)</td>
<td>318</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1243</strong></td>
</tr>
</tbody>
</table>


Robinson, a free man, had arrived in the colony in 1840. By 1847, however, he appears like many others to have recovered from his setback and was back in business once again as a manufacturing silversmith.

\(^1\)Ibid., p.4.
Apart from the early 'forties it is almost impossible to generalise about the standard of living and working conditions of those employed in secondary industry. Crowley says that while real wages probably increased a little, information on rent and housing conditions make doubtful that there was any rise in the standard of living: at best the standard of living remained about stationary. Working conditions were hard, hours were long (a twelve-hour day was the rule), and punishments were frequent for that sector of the workforce who were convicts or assigned servants. No select committees were set up specifically to inquire into working conditions in the first half of the nineteenth century. However, the committees which examined such things in 1859, 1862, and in the 'seventies found much to be desired. If these committees are any guide, working conditions must have been even worse before 1850.

The degree of the organization of labour before the Gold Rushes - like manufacturing itself - was surprising and often impressive. This was largely the result of a considerable concentration of working men in Sydney by 1850. There were several reasons for this concentration. First, Sydney was the largest manufacturing point; secondly, on receiving tickets-of-leave, the majority of convicts who were town bred preferred to remain in the town rather than face the hardship and uncertainty of life in the interior; thirdly, some settlers, repulsed by the harshness of

1F.K. Crowley, *op.cit.*, p.244.
the country, often sold or were dispossessed of their holdings and gravitated to the town. Most of the working class in Sydney would appear to be labourers, domestic servants, white-collar workers and members of skilled crafts. Though some were self-employed manufacturers, many were employed in factories in the modern sense of the term.\(^1\) In the colonial economy of the colony in the 'thirties and 'forties, organised on the lines of small-scale capitalism, there was a fairly clear line of demarcation between employer and employee,\(^2\) so it was not surprising that trade unions and trade benefit societies had appeared well before 1850. By 1850 more than twenty such organizations had appeared in Sydney.\(^3\)

The earliest of the trade societies was that formed by Sydney shipwrights in 1829.\(^4\) Several more were formed in Sydney in the 'thirties: the Cabinet Makers' and Upholsterers' Society in 1833 and the Typographers' and the Coachmakers' Benefit Society in 1837.\(^5\) The 'forties saw a proliferation of such societies. In March 1840 the Engineers, Millwrights, Founders and Smiths established a society, and in the same year the Operative Cordwainers and most probably the Tailors

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\(^1\) Cf. L.J. Hume, "Working Class Movements in Sydney and Melbourne Before the Gold Rushes", *Historical Studies of Australia and N.Z.*, 9 (1960), pp.263-278. Hume is no doubt correct when he says that establishments of less than ten employees accounted for the bulk of employees, but he overlooks the fact that there were also quite a few large factories by the 'thirties and 'forties. *loc.cit.*, p.264.


\(^3\) *Ibid.*, p.266.

\(^4\) L.J. Hume, *op.cit.*, p.266.

and the Boot and Shoemakers formed groups. In 1842 the Journeymen Plasterers, as well as the Slaters and Shinglers formed societies. In 1843 the "Trades Union" of Weavers, Spinners and Warpers, as well as the Stonemasons' Society, were in existence. The Woolstaplers' Society of New South Wales was formed in 1845 and in September 1846 separate societies of Sawyers, Bakers, and Tailors assisted the Carpenters and Joiners' Society by providing strike funds. According to Thomas, the period 1833-1848 witnessed the irregular appearance and disappearance of about eighteen to twenty trade societies, no doubt related to the rise and fall of wages. The year 1848 was the turning point in developing trade unionism; in this and the following year attempts were made to renew the Stonemasons' and Carpenters' and Joiners' Societies. These, according to Thomas, were the harbingers of a new era: the establishment of the Sydney Typographers' Society in 1851 marks the start of modern unionism.

There is only fragmentary evidence of the continuity, membership, funds, constitutions and aims of these early trade societies. With reference to the first of these, Thomas says

The Typographers' Society has a definite nine years' history, the Hand-Loom Weavers' eight years', the Tailors' six years'.... The Shipwrights' Society has perhaps three or four years' history. Membership varied greatly, Thomas estimates between 25 and 60 persons.

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1Ibid., pp.31-32.
2Ibid., p.33.
3Ibid., p.33.
Sometimes membership of a society included the greater part of a particular trade, but the proportion of unionists to operatives was never large - perhaps ten per cent at the extreme. There is little evidence as to their financial state since few records have survived. In June 1839 the Shipwrights' Benefit Society's funds amounted to nearly £400, "notwithstanding that considerable deductions have been made during the past year for necessary disbursements".

With reference to the aims and functions of the trade societies it is often quite difficult to tell whether they were unions of employees, groups of independent contractors, or a general body covering a whole trade. However, as Hume says, the "lack of clarity about occupational status is typical of a society in a period of transition to a fully-fledged employment system". But if a recognition of the demarcation between employer and employee and the exclusion of the former from membership is the mark of a trade union, then most of Sydney's early societies could be held to have met this test. The most obvious function of the trade societies was that they were benefit societies; in fact it was by registering as a Friendly Society at a Court of Quarter Sessions that they obtained their status. The provision of sickness, unemployment and funeral benefits were some of

1 Ibid., p.35.
2 SG, 15 June 1839, cited by Thomas, op.cit., p.35.
3 L.J. Hume, loc.cit., p.266.
4 Ibid.
their important functions, but they were also concerned with wages and working conditions. Hume sums up their raison d'être and context.

The societies were formed to protect the interests of those employed in the various trades, and to help solve the problems that their members encountered as workmen. These problems included the risk of unemployment through accident, illness, or lack of work, besides the regulation of relations with the employers. Moreover the different devices that were adopted by the societies, including friendly benefits, strikes and collective bargaining in various forms, were related and complementary parts of their activities. Support for the out-of-work and the needy members of the trade was a powerful means of buttressing the bargaining-power of the union by protecting it against the risk of undercutting. In this respect the Australian societies closely resembled many English unions, which retained the method of mutual insurance as an important function until the State began to take over responsibility for social insurance in the twentieth century.\(^1\)

Most were formed for mutual benefit or collective bargaining, but by the end of the period some were also largely concerned with protecting themselves against Indian or Coolie labour and the increasing mechanization that time and the industrial revolution brought. In November 1849 the Fellmongers of New South Wales protested about the employment of 18-20 Chinese in the Waterloo (Woolwashing) Mills, and, in June the following year the Hand Loom Weavers alleged that there were too many accidents in the new steam mills and that the work was inferior.\(^2\)

The growth of manufacturing and the factory system in the 'thirties and 'forties had been paralleled by the organization of labour into

\(^1\)L.J. Hume, *loc.cit.*, p.267. See also p.268 et seq. for the role of the trade societies in radical and working class politics.
\(^2\)People's Advocate, 10 November 1849, 22 June 1850, cited by L. Thomas, *op.cit.*, p.44.
trade societies or trade unions. In Sydney these had been formed in all the highly skilled crafts which catered for those who had acquired a skill by apprenticeship and who earned their living in a small workshop or manufactory.
Chapter 6

THE GEOGRAPHY OF MANUFACTURING

Factories and other industrial establishments, with their characteristic shapes, noises and smells, left their stamp on the face of the evolving town and city and were an integral part of the Sydney scene in the period 1788-1850. Indeed, manufacturing from its earliest inception was reflected in a simple geographical pattern: salt pans, lime kilns, and shipyards located on tidal flats; bakeries and breweries near well sites, windmills on the windy ridges, and even the illicit stills hidden away in the dense bush and forest of the north shore. These were all evidence of man's efforts to subdue or modify the effects of a strange and difficult environment. It is the purpose of this chapter to examine briefly the location pattern, or spatial distribution and relationships, of Sydney's early industrial establishments.

Sydney's site, the direction of its expansion and the location of its manufacturing "areas" or "zones", if these terms can be applied before 1850, can only be appreciated with reference to its larger geomorphic setting. The salient topographic feature in the vicinity of Sydney is the flat to undulating plain lying between the city and the rugged Blue Mountains Plateau to the west (Fig. 9). This area of small local relief - roughly triangular with its base along the Nepean River and its apex near Sydney - is enclosed on the north and south by two
smaller dissected sandstone plateaux. The difficult terrain of the plateaux, with deep gullies separating adjacent ridges, and their general inaccessibility, except where fiord-like inlets thrust deeply into them, has not generally been conducive to industrial and commercial development. On the other hand, the topography of the flat to undulating Cumberland Plain has lent itself to a diversity of land use. The Plain was the stage on which was enacted most of the early history of settlement and it was the scene of the major cultural deformations of the nineteenth century - its forests successively giving way to farming, grazing, and even, in parts, subdivision into suburban residential areas by 1850.

Sydney is situated on one of the many peninsulas or club-capes jutting northwards into Port Jackson which lies roughly at the apex of the Cumberland Plain (Fig. 9). The peninsula, lying between Woolloomooloo Bay on the east and Darling Harbour on the west, has two coves which originally received small streams draining shallow valleys. Sydney Cove at the mouth of the Tank Stream is the larger of the two, and it was here in the valley of the Tank Stream that the first settlement was made.

The Sydney peninsula itself consists of a series of north-south ridges terminated by a transverse east-west ridge, the Surry Hills, to the south. (Fig. 10) Sydney's geomorphic setting is well described by James Maclehose in 1838:

The site of Sydney is composed of several undulating ridges of excellent freestone rock, which appear to shoot inland nearly
parallel in a direction almost due south from the southern shore of that part of the waters of Port Jackson commonly known as the Stream, or Middle Harbour, which, with Sydney Cove, constitute the natural northern boundary of the township. The ridges proceed inland for about two miles, undulating, but on the whole, declining as they recede from the harbour, until they become almost a level plain, which, on the southward, is bounded by a transverse ridge of elevated land, known as the Surry Hills, and which may be at present be regarded as the southern confine of the town.¹

This north-south grain of the land meant that the town grew in a rectangular grid pattern southward along the valley of the Tank Stream over Brickfield Hill until it reached the Surry Hills sand ridge. Within this area of small local relief (about 200 feet) the general topography is undulating to hilly with gradients between 1 in 20 and 1 in 7.² South of the Surry Hills the land slopes south towards Botany Bay and is drained by Shea's Creek and the Lachlan and Botany swamps. This flat area of coastal sand beds with an average gradient of not more than one in twenty is admirably suited for industry: it is one of Sydney's main industrial areas today and it had attracted certain industries in the first thirty years of settlement. These swamps in their natural state were a series of marshes composed of a few feet of loam with swamp vegetation and 60 to 100 feet of clear sand beneath. They were in reality huge storage reservoirs and filterbeds combined, and in the second half of the nineteenth century they supplied water for

²See map, Sydney Region Showing Generalised Topography, N.S.W. Govt. Printer 1946.
Figure 10.
domestic as well as for industrial purposes. However, to 1850 the streams that traversed them were dammed for water mills, and the whole area was suitable and used for such noxious trades as boiling-down.

It should also be noted that several topographical changes took place in early nineteenth century Sydney. These changes had important effects on the location of certain industries and an appreciation of them helps to explain some past and even present day industrial phenomena. Many of the hills and ridges for instance, were somewhat higher than at present. The site of the second windmill on the York Street ridge was a significant twenty feet higher than today; Brickfield Hill was reduced in height by fifteen feet in the late 'thirties; parts of the Surry Hills were used to reclaim Woolloomooloo Bay; and much of the remainder of the sandhills drifted north and helped to reclaim the head of Darling Harbour. It was reclamation, however, that constituted the most important modification to the physical geography of Sydney. Reclamation resulted in both the exclusion of industry from some areas, like boat building at the mouth of the Tank Stream, or the expansion of existing industrial sites in other areas, as in the case of iron foundries, flour mills, and the gas works on Darling Harbour. The process of reclamation began around the mouth of the Tank Stream almost as soon as the first leases were issued. By the 'thirties and

2J. Maclehose, op.cit., p.69.
3W.A.B. Greaves, JRAHS, 3, p.420.
4See Report of the Select Committee on Sand Drifts with Minutes of Evidence, VPLC (1852), 2, pp.285-301.
forties some Darling Harbour leases had been reclaimed to the extent of three chains. ¹

By 1821 an industrial pattern had emerged in Sydney which, though modified somewhat, was to become more pronounced in the next thirty years. This pattern was the result of a variety of causes: physical, economic considerations, and government legislation. The extent of Sydney's development and its main functional zones are shown in Figure 11. Though factories, shops and public buildings were often abruptly contiguous and almost no area entirely exclusive to one or even two functions, the delineation of Sydney's present-day zonal groupings was roughly apparent by this date. ² Manufactories of all kinds were numerous in the centre of the town and particularly noticeable was the concentration of establishments like salt works, lime-kilns, and flour mills on the eastern side of Darling Harbour. Windmills, which were originally exclusively located on the York and Macquarie Street ridges, were now cramped by the expanding town and moved closer to the waterfront or sought locations on the perimeter of the town. Boat-yards followed the movement of the market boat terminal from Sydney Cove to Darling Harbour; and slaughter houses also showed a preference for waterfront locations.

¹See "Plan of the Wharves...in Darling Harbour, 1843", in Sketch Book No.4, folio 132, (NSWA); Town Surveyor's Report Book, 1830-1832, pp.70-71 (ML) A 1489-2. See also, Progress Report from the Select Committee on Darling Harbour and Blackwattle Bay, VPLA (1863-4), 2, pp.1089-99.

²See K.W. Robinson, Australian Geographer, 6 (1952-6), pp.6-12.
But this concentration in the town was somewhat offset by the growing dispersal of industries like flour milling, paper and textile manufacturing, which were now largely dependent on the availability of water mill sites. The change to water power, made possible by partnerships with more capital, led to the development of the good water mill sites on the flat land south of the town where two small streams, or rather chains-of-ponds, flowed southwards through the Lachlan and Botany swamps into Botany Bay. A woollen mill, two flour mills and a paper mill, all powered by water, were erected here after 1815. (Fig. 12).

As well as the physical requirements of site, Sydney's manufacturing pattern was influenced by economic factors. With the increasing scale of operations and the development of a certain amount of interdependence, certain establishments gained advantages by being located in close proximity to each other in the town. Slaughter houses, meat salting works, tanneries, as well as soap and candle works, gained economies in transport costs by locating close together. Another example is afforded by the bakeries which were always located near a flour mill if not attached to the mill itself.

Some industrial concerns, like slaughter houses, were compelled by other than physical or economic considerations to be either newly established in a certain area or to change their present location. As stated in Chapter 3, government regulations concerning the location of certain manufacturing ventures were promulgated as early as 1810.
Slaughter houses, tanneries, dying works, breweries and distilleries were specifically mentioned and barred from being located near the Tank Stream. The necessity to thus regulate the location of manufacturing was a reflection of its growth in the small colony. Increasing awareness among the population of the necessity for such regulations is shown by the request in 1813 of one would-be manufacturer for permission to erect a mill on the Botany Bay Road, "where the Furnaces and Smell may not prove a Nuisance".¹

Sydney had eight windmills by 1821, but it is significant that the number of windmills in the immediate interior remained small. Here the population was smaller and more dispersed so that hand mills were often sufficient. Horse and water mills, however, were making their appearance in the grain-growing areas. But there were technical difficulties for the windmills. The farms in the interior of the Cumberland Plain were often out of range of the diurnal sea-breezes and, as little of the land was cleared, the forests reduced the effectiveness of the winds that did penetrate.² The construction of flour mills in the drier interior thus depended very much on the availability of water mill sites.

When considering the geography of manufacturing around Sydney some notice should be taken of what might have been, or what was actually

¹J. Hutchinson to Colonial Secretary, 7 December 1813, HRA, 8, p.214. ²Sir John Jamison to Commissioner Bigge, 20 January 1820, Bigge, Appendix, BT, 21.
deficient in the landscape. In any colony the new settler always has some vision of reconstructing in his new land aspects of the material culture and civilization he has left behind. It is not surprising then that some thought was given to the construction of canals. Archibald Bell, a free settler near Richmond, suggested to Bigge that a canal cut from Emu Plains (near Penrith) to the Parramatta River would solve the flood problem of the Hawkesbury River and would afford a midland navigation, with all its advantages to a colony almost destitute of rivers and afford the means of establishing an easy communication for produce - the erection of Flour Mills and other manufactories etc. etc. ¹

But nothing happened along these lines. The idea of canals linking the Hawkesbury-Nepean with the Parramatta River was revived in the 'thirties, ² and the way of a proposed canal was surveyed in 1833.³ Though a costly project it was certainly a feasible one. But again nothing was done.

One of the main developments in the geography of manufacturing in the colony in the period 1822-1850 was the growing dispersal of many industries that were once located only in or close to Sydney. There is no general evidence of a marked decline in the number of factories in the Sydney area, but many new ones tended to be located near the supplies of raw materials. This trend is most noticeable after 1841, especially in

the flour milling, brewing, textile and tobacco manufacturing industries. For example, small woollen manufactories (many of them shortlived) and flour mills in particular were established in the newer agricultural districts. Table 9 shows the degree of dispersion that developed in three of the above-mentioned industries in the decade 1841-1851.

**TABLE 9**

**FLOUR MILLS, BREWERIES, AND WOOLLEN MILLS IN SYDNEY AND THE INTERIOR, 1841-51**

<table>
<thead>
<tr>
<th>Year</th>
<th>Flour mills</th>
<th>Breweries</th>
<th>Woollen mills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sydney</td>
<td>Interior</td>
<td>Sydney</td>
</tr>
<tr>
<td>1841</td>
<td>16</td>
<td>69</td>
<td>6</td>
</tr>
<tr>
<td>1843</td>
<td>16</td>
<td>99</td>
<td>4</td>
</tr>
<tr>
<td>1845</td>
<td>18</td>
<td>112</td>
<td>4</td>
</tr>
<tr>
<td>1847</td>
<td>16</td>
<td>119</td>
<td>4</td>
</tr>
<tr>
<td>1849</td>
<td>15</td>
<td>136</td>
<td>2</td>
</tr>
<tr>
<td>1851</td>
<td>15</td>
<td>130</td>
<td>3</td>
</tr>
</tbody>
</table>


There were two main reasons for the growth of material-oriented industries in the interior. In the first place, distances and transport were increasing with the expansion of settlement around new nuclei often isolated from each other and from Sydney. Therefore it was natural that new inland towns, such as Bathurst, Maitland and Goulburn, developed industries like flour milling, brewing and tanning based on local raw materials. Secondly, in the flour milling industry the steam engine was
less demanding in site requirements than were wind or water mills.
One-third of all flour mills in the interior of New South Wales were
powered by steam by 1851. However, industries dependent on imported
raw materials, notably the engineering and metal working industries,
were still confined to the Sydney waterside.

In the Sydney area the location of factories generally followed
the lines already indicated. The rough outline of the main functional
zones evident by 1821 remained basically the same. And, although the
zones were not exclusive to one or even two functions, the so-called
industrial areas of the Regency town and its surrounds became more
definite during the years 1822-51. For example, for reasons of
transport and fuel supply, flour mills, iron foundries, and steam saw-
mills were attracted to waterside locations, particularly to the eastern
side of Darling Harbour. (Figure 4) Slaughter-houses, compelled by
legislation to move to waterside locations in 1830, and engineering
works, associated with the building and repair of vessels, also tended
to be attracted to Sussex Street and Darling Harbour in the 'thirties
and 'forties.

Industry also followed the expansion of the town. In the late
'twenties the town rapidly expanded to the south and much building was
carried out at the southern extremities of Elizabeth, Castlereagh, and
Pitt Streets. The town also expanded eastward towards the Darlinghurst
ridge and many elegant town houses were constructed along the road to
South Head and on Woolloomooloo Hill. Several breweries, a distillery,
a sugar refinery and a steam flour mill were established south of Liverpool Street in the upper part of the town and along Parramatta Road. (Fig. 5) This southward spread of industry was most marked by the mid-'thirties. Windmills, in general, following the expansion of the town to the high ridges on the east; and by the late 'twenties the Darlinghurst ridge in the vicinity of King's Cross had become an important milling area.

The most important single factor determining the location of manufacturing was the presence of a dependable water supply. The larger breweries, the Albion in Elizabeth Street, and the Kent on Parramatta Road, the sugar works and the two distilleries, the Glenmore at Paddington and the Brisbane on Parramatta Road, were all relatively large establishments necessarily located near a good water supply. During this period some new industries sought locations further away from the town. Though government regulations and fear of litigation for nuisance may have caused some of the newer noxious industries to be established further out, more important was the need for a plentiful water supply. Thus, apart from windmills whose sites were mainly determined by elevation and aspect, the main exceptions to the established patterns of the previous periods were: the establishment of the first sugar refinery on Cook's River at Canterbury in 1841; the location of copper smelting and boiling-down establishments on harbourside and Parramatta River sites some distance from the town; and wool-scouring and boiling-down works in the Waterloo-Botany area. However, the dispersal of industry was offset to some degree by the provision in Sydney of a
regular water supply in 1837 and a water reticulation system to some parts of the town in 1844. The Australian Brewery on Brickfield Hill was the only large remaining brewery in the town proper by 1851. One of the reasons for its survival was that it was linked to the water reticulation system. Concern expressed as to the adequacy of Sydney's water supply by 1852 was indicative of both the importance of water and the growth of manufacturing. As mentioned in Chapter 4 manufacturers joined with merchants in 1851 in petitioning the government for a more reliable source of supply.

The physical factor of water supply was the most obvious single localizing factor as regards actual site for industry, whether as a medium of transport or as a requirement in an industrial process. But other factors were also important. As was already evident by 1821 external economies were obtained by certain industries locating in close proximity. This continued to exercise an influence on the location of manufacturing, especially in the case of tanneries, boiling-down, soap and candle works. In the 'thirties and 'forties, the large amount of government legislation against the carrying on of noxious trades in the city led to a change in the overall pattern of industry. In particular, the legislation enacted in 1849-50 had, in time, the effect of removing

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1 In 1851 only about one-eighth of the houses of Sydney had water laid on; most inhabitants purchased water from carriers or conveyed it from the "stand pipes". SMH, 22 February 1851.

2 J. Wright, Remarks on the Report of the Water Committee of the City Council, on the subject of the supply of water to the Australian Brewery (Sydney 1852), p.8.
noxious trades like fellmongering, tanning, and boiling-down to the flat waste land along Shea's Creek and the Lachlan Swamps. The effects of this legislation is clearly evident even today in the industrial character of the Waterloo-Botany-Mascot area.

Manufacturing had developed considerably in the colony's first sixty years and so an historical geography can be sketched for this expression of man to satisfy a particular economic need. But in addition to the static locational picture there are dynamic aspects of the manufacturing scene. Raw materials like grain, sugarcane, wool, tan-bark, hides, metals and coal flowed into Sydney by sea, river, and road. Sydney, the main market, consumed a large amount of the goods manufactured, but consumer and capital goods such as foodstuffs and steam engines found their way back into the interior and to other coastal towns and colonial outposts. Some products, notably foodstuffs, were exported to the Pacific Islands, and even as far away as California by 1850.

Sydney in 1820 was a small and elegant Regency town with a population of about 12,000. Between 1820 and 1850, the population increased fourfold, a ring of suburbs developed, and Sydney's communications with its hinterland were both extended and improved. Joseph Fowles' unique and valuable *Sydney in 1848*, depicts the face and character of mid-nineteenth century Sydney with its rows of beautifully proportioned Georgian buildings - with their clean lines, rose fanlights and mullion windows - and the architectural triumphs of the day.

Sydney's social structure changed radically between 1820 and 1850.
and so did its function and way of life. In the first thirty years
Sydney's commercial life looked out to Asia and the Pacific, but by
1850 Sydney and the other Australian colonies were commercially oriented
towards Europe. Sydney as a city-port had its industries like any such
city, but its main commercial function was to link the extensive
pastoral hinterland of New South Wales to the cloth-producing areas
of England.
Chapter 7

CONCLUSION

Sydney during the period 1788-1850 grew from a convict camp of a thousand, to a thriving city with a free population of 54,000. The foundation years to the end of Macquarie's governorship, saw the origins of manufacturing as well as the genesis of commerce, agriculture and the pastoral industry. At first, manufacturing ventures were usually initiated and directed by the government, but private individuals, both emancipists and free settlers, were quick to enter the field and often take over government ventures. After 1821 government manufacturing declined and the private manufacturing sector grew rapidly, aided by the flow of capital and labour, and by an ever increasing demand for perishable and semi-durable consumer goods.¹ During the 'thirties and 'forties Australia's pioneer "captains of industry" established some relatively large and successful factories (including three firms which are still in operation today),² and an embryonic factory system developed as a result of the wider application of steam power. The increase in the number of factories and manufacturing

¹An indication of the great demand for manufactures in the colony, as well as early American enterprise, was the arrival in Sydney on 16 January 1839 of the ship Tartar from Boston, U.S.A., with an entire cargo of ice! This "rough ICE for Cooling Wines" was sold in quantities of three pounds upwards. SMH, 21 January, 18, 22 February 1839.

²Tooth & Company's Brewery in 1835, the Australian Gaslight Company in 1839, and the Australasian Sugar Company (now CSR) in 1841.
activity in general was reflected in turn in the appearance and growth of trade societies or unions.

Sydney, the main town and port of the colony had developed as the largest manufacturing centre. In the town, factories were very much dispersed throughout the city, although the southern perimeter of the city and the eastern side of Darling Harbour had become areas almost exclusively devoted to industrial uses. The only other industrial area was that south of the Surry Hills, between Sydney and Botany Bay. The concentration of industries in these zones was the result of several factors, the most important of which was water - as an industrial resource and a means of transport. The provision of an adequate and dependable water supply was a necessary factor in the growth of the city and indeed critical for the location of manufacturing establishments like bakeries, breweries, and tanneries. First, the TankStream, then wells and a reticulation system satisfied the needs of the city and its manufacturers. The availability of water power in the Waterloo-Botany area led to the development of this area as one of the largest manufacturing districts in Australia today. In Governor Macquarie's time water-mills were built by millers and woollen manufacturers on the streams which drained south to Botany Bay. Steam power gradually supplanted water as a source of power, but this area still retained its industrial character. Adequately endowed with water, this tract of land diminished in importance as a flour milling area and developed industries such as wool-scouring and boiling-down which still needed a
good water supply. The excellent waterfront facilities of Darling Harbour assisted the transport of raw materials and finished products both to and from the flour mills, foundries and shipyards that concentrated there. As a source of power, as a raw material, and as a means of transport, water is the key to Australia's industrial development in the first sixty years.

The restrictive legislation enacted between 1830 and 1850, concerning the location of slaughter-houses, tanneries, boiling-down establishments and the like, also determined the general direction and area where certain industries are situated. These regulations alone account to a large extent for the southward progression of industry from the southern boundary of the city over the sandhills and swamps to the northern shore of Botany Bay.

Apart from the concentration of demand and labour in Sydney, which by 1850 contained almost one-third of the colony's population, Sydney was in a position to supply manufactured goods to the newer settlements in the interior, exploit export opportunities to other colonies and, above all, profit by the operation of certain external economies in production. Sydney supplied perishable and semi-durable consumer goods as well as investment and capital goods such as carts, waggons, steam engines and boiling-down plants to towns in the country. The main export markets for manufactures were found in New Zealand, California, Britain, and some other British colonies. Foodstuffs, such as butter, cheese, flour, bread and biscuit, and salt provisions were the main exports to
New Zealand and California; leather was exported to Britain and New Zealand. Important, however, as a factor in determining the growth and location of manufacturing in Sydney was that the city's manufacturing structure was sufficiently large and diversified to enjoy certain external economies through industries such as cattle-slaughtering, boiling-down, fellmongering, tanning and the manufacture of footwear, soap and candles locating close to one another.

While Sydney possessed advantages as a growing point of manufacturing and was the largest manufacturing centre in the Australian colonies at that time, the other settlements around the coast of Australia and the growing towns in the interior of New South Wales developed certain manufactures based on the working up of local raw materials. Like Sydney and its foundation years and the American frontier towns of the time, Hobart, Melbourne, Moreton Bay, Adelaide, and the larger towns in the interior like Windsor, Maitland, Bathurst, and Goulburn all exhibited the usual basic industries such as flour milling, brewing, tanning, sawmilling, as well as the minor metal and woodworking trades. In 1850 Windsor had six steam mills, a brewery and seven tanneries; Maitland, seven steam mills, three breweries, five tanneries and an iron and brass foundry; Bathurst, four steam mills, two breweries, four tanneries, and two soap factories; while Goulburn had two steam mills, two breweries, one soapworks, and eight tanneries.¹

There was little development of manufacturing at Melbourne, Moreton Bay, and Adelaide, beyond that found in the bigger country towns of

¹FMR for 1850.
New South Wales. One-third of the population of the Port Phillip District (21,000 in 1843) was concentrated in Melbourne in the 'forties and the main industries were flour milling, brewing, tanning, and others also based on the working up of local resources, all of which received a degree of natural shelter. There was little investment in manufacturing, and in fact Melbourne's experience was somewhat like Sydney's in that "the large capital introduced by the colonists rapidly disappeared, in excessive payments for Crown Lands, and remittances for imported merchandise". ¹

In terms of length of settlement and degree of economic development, the only Australian colony with which a comparison of any value can be made at this time is Van Diemen's Land. The development of manufactures in Van Diemen's Land was not inconsiderable when compared with the older colony on the mainland, and several factors account for this. First, the similarity to English climatic conditions encouraged and indeed permitted a wider range of industrial prospects, although - as in New South Wales - these were not always successful. ² Secondly, because of its high rainfall reliability there were abundant water power resources. But thirdly, and most important, Van Diemen's Land had an even higher degree of urbanization than New South Wales. About fifty per cent of

¹ W. Westgarth, Commercial and Statistical Report on the Colony of Port Phillip (Melbourne 1844), p.4.
² See L.F. Giblin in Australasian Association for the Advancement of Science, Handbook to Tasmania (Hobart 1928), p.75.
the population lived in Hobart or Launceston, and as in Sydney the
growth of local needs in the urbanized community encouraged the growth
of local manufacturing. This urban concentration - as in the case of
Sydney - was the direct consequence of the fact that the basic industry,
the pastoral, had relatively limited labour requirements. The resultant
increasing concentration of population in Hobart and Launceston found
employment in service activities of various types, but some turned
naturally to primitive manufacturing.

The most important industries in Van Diemen's Land were flour
milling, brewing, distilling, tanning, ironworking and boat-building.
The statistics indicate that the size of the so-called 'factories' and
scale of operations was much the same as in Sydney and that numerous
ventures were set up from time to time in a vain endeavour to overcome
the necessity of importing such goods as cloth, hats, parchment, glue,
and starch. Moreover the sequence in the development of manufacturing
was identical with that of the oldest colony on the mainland; the first
industrial efforts were concerned with the production of items of food
and drink and the provision of shelter, then followed the manufacture of
household commodities like soap, salt, clothing, leather goods and
furniture, and by 1850 the production of some capital goods like
agricultural machinery and steam engines. Contemporary Van Diemen's Land,

2Ibid., p.146.
3Ibid., p.145.
with its similar penal background, is the only Australasian colony
developed enough to make any inter-colonial comparisons meaningful.

Progress in manufacturing depended somewhat on the prosperity of
New South Wales as a whole, though it is impossible to measure the effect
that the trade cycle had on manufacturing. The gold discoveries in the
year 1851, however, were a watershed in the colony's economic development.
The immediate effect of the gold discoveries upon the small manufacturing
industries of New South Wales was, as Coghlan says, "to stimulate some
and extinguish others".\(^1\) The influx of population into the country
increased the demand for manufactured goods and in general stimulated
industries concerned with the provision of foodstuffs and mining machinery.
But offsetting the effects of an increased demand was the fact that most
unskilled labourers and the more enterprising and resourceful men were
attracted to the diggings - a defection which proved fatal to many minor
industries, such as the manufacture of rope, tobacco, and the smaller
woodworking and metalworking trades.\(^2\) If the Californian gold-rushes of
1848 had induced hundreds of sturdy mechanics to leave the colony's
shores and cause a slight falling off in manufacturing activity,\(^3\) the
discovery of gold in eastern Australia in 1851 meant the exodus of
thousands from Sydney and a more widespread and serious curtailment of

\(^1\) T.A. Coghlan, *Labour and Industry in Australia* (Oxford 1918), vol.2,
p.683.
\(^2\) See the evidence of W.B. Allen before the Select Committee on the
\(^3\) C. St Julian, and Silvester, E.K., *The Productions, Industry and Resources
of N.S.W.* (Sydney 1853), p.249. See also *The Industrial Progress of New
manufacturing activity. It was not only the squatter, who

...speechless with despair,
Weeps o'er his hopes dissolved in air;
Bewildered, looks for help around, -
For help, which cannot now be found.1

The gold discoveries had a cumulative effect upon established manufactures. First, the attraction of labour to the diggings, as well as creating a manpower shortage, caused labour costs to rise; secondly, the shortage and high cost of labour hastened the increased mechanization of many industries; and thirdly, while there was an increased demand for manufactured goods, the increased wealth of the golden age once more established a period of general prosperity which largely destroyed the natural shelter provided by the relative poverty of the colony and allowed large quantities of manufactured goods to be imported.2

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1 Verses entitled 'The Advent of Gold in New South Wales' in SMH, 19 May 1851.
2 The generally depressed state of manufacturing in the 'fifties and 'sixties led to the appointment of two government select committees - one, in 1859, to enquire into the condition of the working classes, and the other, in 1862, to enquire specifically into the state of manufacturing and agriculture. Both committees found that the manufacture of clothing, textiles, leather, boots and shoes, furniture, and tobacco had all diminished after 1851 in the face of rising labour costs and increased imports; indeed, it was stated by one witness before the 1859 select committee that the building trade was the only flourishing industry - "the reason being that you cannot import a stone house". Not only had the output of some industries, like tanning, been cut by half, but the progress report of the 1862 select committee even claimed that manufacturing had not increased at all during the last twenty years and that "there were many manufactures flourishing some time back which at present are not in existence". See Report from the Select Committee on the condition of the Working Classes, with Minutes of Evidence, VPLA (1859-60), 4, pp.1267-1341, and Progress Report from the Select Committee on the State of Manufactures and Agriculture...with Minutes of Evidence, VPLA (1862), 5, pp.1043-1120.
Manufacturing was more important in the economic activities of the period 1788-1850 than has so far been recognised by most economic historians. However, looking at manufacturing in its context and gauging its importance in relation to the pastoral, commercial and agricultural activities of the period, the size, structure, and output of manufacturing activity was small in relative terms. There are no figures for manufacturing output in the first half of the nineteenth century, but there are export figures for all produce of the colony. In the years 1844 to 1850, when detailed export figures became available for the first time, wool, grain, oil, timber, livestock and tallow accounted for 94.2 per cent of the total value of exports, "the produce or manufacture of New South Wales". Wool alone accounted for 72.7 per cent of the value of exports, and if one omits tallow, which ranks low in terms of value added in the manufacturing process, manufacturing accounted for less than six per cent of the value of "seaward exports" in the period 1844-1850.¹ However, export figures are not a good guide for measuring manufacturing which was primarily and naturally oriented towards the domestic market.

Apart from the lack of a series of production figures for manufacturing, there is also no reliable statistical information for other important aspects such as capital invested, labour employed, factory size, value of production, and value added in the manufacturing process. It is unfortunate that the lack of detailed statistical series,

¹Calculated from SRNSW, 1844-1850.
together with the intense patriotism of the local press, make it difficult to assess the amount, value and the quality of locally manufactured goods. But apart from the fact that the economic slumps of the 'twenties and 'forties possibly gave stimulus to some local manufactures or, at least, some experiment in manufacturing, it is clear that during the first sixty years the colony never succeeded in becoming completely self-sufficient. Practically all the goods being manufactured locally were also being imported at the same time, if perhaps only to a lesser extent in periods of economic distress when a greater degree of shelter was probably provided. Despite intensive propaganda, and the puffing of local manufactures in the press, there remained a strong preference for British imports. Few industries, except some of those based on working up local materials, could be said to be firmly established and supplying the greater part of the local demand by 1850.

Yet the achievements of the early manufacturers were impressive from a pioneering point of view. If, as Lipson says, the true gauge of economic progress lies less in the scale of operations than in the fundamental adjustments made to satisfy demands, the period 1788-1850 witnessed many important developments in the manufacturing sector of the colonial economy. Moreover, the pioneer manufacturers of the early nineteenth century had laid firm foundations for the four main manufacturing groups that were to dominate the manufacturing structure of the colony in the latter half of the nineteenth century: food and drink, textiles

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and clothing, metals and machinery, and building materials and construction. These were the basic manufactures which could be, and in most cases had to be, produced locally. Whilst policies of protection or free trade might help or hinder them in the succeeding years, they were the natural industries of a distant colony.

In 1851 Britain displayed to the world at the Great Exhibition in London the triumphs of the industrial revolution. Britain, the most industrially advanced nation in the world dominated the Exhibition and the impressive range and the standard of her exhibits served, among other things, to put the manufacturing efforts of other nations and especially her colonies into context. Nevertheless, the Australasian colonies exhibited manufactured goods, and some were from Sydney.¹ where British skill, knowledge, and capital had given birth to manufactory enterprises which would continue to grow. In the same year the uncovering of the Australian goldfields transformed the colonies, but when the first rushes were over the manufacturing industries resumed their development on the foundations already laid.

¹Official Catalogue of the Great Exhibition of the Works of the Industry of All Nations, 1851 (London 1851), pp.178-184. New South Wales, Western, and South Australia tended to ignore the Exhibition. However, Van Diemen's Land exhibited an impressive array of manufactures, which no doubt Sydney could have surpassed if she had wished.
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