TOWN PLANS AND THEIR IMPACT ON THE
SETTLEMENT PROCESS IN AUSTRALIA
1788 - 1849

Volume II
FIGURES

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INTRODUCTION

FIGURES
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Fig. 0.1 (d) Marble relief with depiction of surveyor's instruments, found at Pompeii 1956, dated to the first decades of the first century A.D. The fragments were part of a funerary stone for a freedman surveyor or agrimensor whose name and that of his concubine are inscribed: 'Nicostratus Popidius sibi et Popidiae Ecdote con(cu)binae suae et suis.' The stone itself was exhibited at the Australian Museum, College Street, Sydney in January 1995 in their 'Rediscovering Pompeii' Exhibition, and the picture is exhibit No. 62 from the catalogue, by courtesy of the Museum.

To the left side, there is a groma, the principal surveying instrument used by the Romans to draw perpendicular lines on the ground and to calculate areas and distances. It was an essential tool in dividing cultivable land and creating, planning and marking out new urban centres. At the right, there is represented a twisted skein of string with a pendant head for an attached weight, and two shafts; these were the plumb line or 'perpendiculum', and the poles of alignment, and the measuring sticks with tips protected by metal caps. This is considered a very accurate depiction of the groma, and can be compared with that pictured in the stele in Fig. 0.1 (c).
Fig.0.1 (e) By the 16th century, the surveyors had to start again, as knowledge of the Roman method had been lost. By then, Italian scholars were writing about the new method of levelling and determining distances. Silvio Belli, in his book, *Libro del misurar con la vista*, published in Venice, 1565, wrote of the use of the compass, cross-staff, quadrant and astrolabe by the surveyors, who were becoming a new professional body. Their work became known in England where the practical 'landmeaters' or surveyors studied the books of Edward Worsop, Robert Recorde, John Dee and Leonard and Thomas Digges. (See footnote 4)
Fig. 0.2 Woodcut bird's-eye view of Norwich. From William Cunningham, *The Cosmographical Glasse*, London, 1559, and James Elliot, *The City in Maps*, British Library, 1987, p. 40-41. The city is viewed from the west, with the surveyor at his plane-table in the foreground. Places of interest are lettered and a key is provided on the reverse side of the sheet. This view is the earliest surviving printed map of any English town. Detail.
New Haven exhibits a purely Vitruvian figure (derived from the Roman architectural theorist, Vitruvius). Its perfect square shape became an archtypal form for colonial towns catering for newly assembled immigrants in the New Worlds of America and Australia. Here the square is divided into nine smaller squares, with the central square reserved for common land. In Australia, this form, with local variations, can be found translated into the town plans of Emu Plains, Bathurst, and other small towns.
Fig. 0.4 Peter Gordon, 'A view of the town of Savannah as it stood the 29th March 1734', engraving, London? 1734, British Library Map, reproduced in Elliot *op cit*, p.57. Vincent Scully, discussing this plan, discerns the strong rhythmical effect of the closed and open units of the grid form, where the squares of the park were separated by only a few distinct blocks of build-up rectangles, thus intensifying the rhythm of street and square expanded and contracted throughout the city. Deceptively simple at first glance, the plan has a complex arrangement of units of urban solids and voids which attain a three-dimensional sculptural balance.

Philip Slaeger's etching of Windsor, NSW, 1814, echoes this point of view, but Windsor's plan was not so determined in its regularity. (See Figs. 5.3 and 5.4)
Fig. 0.5 Plan of the City, Castle and Suburbs of Edinburgh, being an inset in Armstrong's map of the Lothians, 1773. Register House Plans, No. 1722, S.R.O. Offprint No. 4. The Old Town of Edinburgh contrasted with the projected New Town north of the Canal.
Fig. 0.6 Plan of the Town of Bathurst, 19 June 1833, extract. Signed by T.L. Mitchell. Facsimile by Central Mapping Authority of NSW by permission of the Archives Authority of NSW, 1985. A typical post-1829 plan based on the Vitruvian nine-square figure, with variations to accommodate the original settlement, and an extension to the east. The town blocks are grouped around a central square, and the streets are marked at right-angles. Sites for the most important uses are marked out: church, court house and gaol, market place, cattle market, hospital, barracks for the convicts, the police, and the military, with the reserve or common adjacent to the river.
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CHAPTER ONE

FIGURES
Fig. 1.1 (a) Letter sent by William Dawes to Rev Dr Nevil Maskelyne, 30 April 1788. He sketches the Observatory he was building on Point Maskelyne (later called Dawes Point). From Dawes’s correspondence to Greenwich Observatory now held at Herstmonceux Castle, Sussex. As this is such an important letter, I have included both Manuscript pages here.
He draws the roof to the octagonal room of his Observatory; the roof itself has a circular base, with the vertex one foot distant from a point exactly over the centre of the base, the diameter of the circle is 9 feet. It is constructed of light fir rafters to which white painted canvas is to be nailed; a shutter will slide into a space marked 'd'.

Fig.1.1 (b) Page 2 of the Dawes letter of 30 April 1788.
Fig. 1.1 (c) The Quadrant used by William Dawes, drawn by Rod Bashford, Macquarie University. Now held by the Powerhouse Museum.

Fig.1.2 'Sketch of Sydney Cove, Port Jackson, in the County of Cumberland, New South Wales, July 1788'.
Fig.1.3 Detail of 'The Settlement in New South Wales. New Holland'. Archives Office of NSW, AONSW Map SZ430, pasted to the back of another similar contemporary map dated 2 December 1792, which is signed in Governor Phillip's hand. Phillip had this map prepared just before leaving the colony. The map was later copied and appeared in printed form in 1886, almost a hundred years later. (See Fig.1.4) Phillip's boundary line from Woolloomooloo Bay to the head of Cockle Bay, not shown in this detail, is open to various interpretations, but the usual one is that he intended the site of the town to be bounded by this line and that all land north of the line was to remain the property of the Crown, including all houses already built, and no ground ever granted or leased. Note the diagonal 'street' which was transposed in the Dawes/Stockdale plan, to the western side of the Tank Stream.
Fig.1.4 'A Survey of the settlement in New South Wales. New Holland', composite copy of the two maps above, one of which is signed in Governor Phillip's hand at Sydney, 2 December 1792. It was published in A. Garran (ed), Picturesque Atlas of Australasia, vol.1, Sydney, 1886, engraved by A. Dulon and L. Poates. Governor Phillip's boundary line can be clearly seen.
Fig.1.5 'Town of Parramatta', black and red pen and ink and grey wash. Public Record Office, London, CO700/NSW.4. Unsigned and undated, but circa 1790 and attributed here to William Dawes. The notation can be compared to Dawes's handwriting in his letters.
Fig. 1.6 'Town of Parramatta', copied from manuscript plan held in the Public Record Office, London, CO700/NSW. 4 by the author. Another copy is in the Bonwick Transcripts Box 36, Mitchell Library Sydney. Street names have been added and some names of buildings; the width of the streets, written on the original map are as follows: High Street (later George Street) is 205 feet wide, South and Bridge Street 118 feet, and Church Street 143 feet; the lanes vary from 60 to 76 feet wide.
Fig.1.7 A View of the Governor's House at Rose Hill in the Township of Parramatta. J. Heath, sculp. From David Collins, *An Account of the English Colony in New South Wales*, Cadell and Davies, London, second edition 1804. The original of this view was probably drawn by Thomas Watling, but has not survived. High Street (later George Street) lined with convicts' huts and a storehouse, is extended up to the fence of the Governor's garden.
Fig. 2.1 George Raper, View of the East Side of Sydney Cove, Port Jackson, from the Anchorage, the Government House bearing S.bE.bE., by the Flag Staff S.E.bE.bE. c.1789. British Museum, (Natural History). This view shows the Flag Staff exactly positioned within a small compound near the shoreline of the Cove, re-stating the location of the first formal Ceremony of Foundation of 7 February, 1788. If this drawing, and others made by Hunter and Bradley at the same time, are carefully compared with the Map made of the Cove in 1833 (AONSW Map No.5633), we can see that the Flag was later superceded by an Obelisk erected in 1816, placed very near the same spot.
Fig. 2.2 George Raper, Principal Settlement on Norfolk Island, c.1790. National Library, Canberra. The note on the drawing adds the information that the nearest flag, blue with a yellow cross, was hoisted when landing conditions were good. The flag in front of the Lieutenant-Governor's house was the Union Jack. The drawing was made after Phillip had sent an additional 280 people to join the initial 22 sent over with Lieutenant King on the 15 February 1788. The two flags and their Flag Staffs dominated the little settlement visually.
Fig.2.3 (a) Map of Part of Sydney Cove, 12 July 1833. (AONSW Map no.5633), from H. Proudfoot, Cadman's Cottage, Sydney, 1988. This map shows the profile of Cove at the mouth of the Tank Stream, the land reclaimed behind properties lining Macquarie Place, and the build-up of mud flats around the shore line. The Obelisk stands in the middle of the triangular Macquarie Place which has since been cut down by half. The semi-circular wall containing the southern end of the Cove was constructed in 1842.

(b) The Obelisk, drawn by Morton Herman, for H.M. Ellis, Francis Greenway, Angus and Robertson, Sydney, 1949.
Fig. 2.4 The Templum of the Sky. Miniature illustrating the 'Constititio Limitum' in the most ancient surviving manuscript of the Corpus Agrimensorum, a sixth century collection of writings on Roman Surveying methods. A copy from Joseph Rykwert, *The Idea of A Town*, 1988, p. 48.
Fig. 2.5 An ancient 'Herm', or boundary stone from the Villa Medici, Rome. These stylised stone hermaphrodite figures were used to mark sacred boundaries, and were dedicated to the god Terminus, the god of boundaries. Punishment for the unauthorised moving of boundary stones was severe. In Renaissance times, Herms were resurrected as garden ornaments, and enthusiastically adopted by the architects, divorced from their original function. The modern equivalent is the surveyor's white peg. (Photograph by the author)
Fig. 2.6 A Boundary Stone still standing in its original position in Alfred Street, Parramatta. It stands battered, but with the inscription still legible. In 1839, Governor Gipps instructed David Lennox to erect nine boundary stones to mark the limits of the town. Of these, five survive, most in poor condition. These stones are related to the Roman 'herms' which marked site boundaries; in early 19th century New South Wales they marked town limits.
Fig. 2.7 The City of Sydney, engraved for surveyor William Henry Wells, 1843. The original boundary line marked by Governor Phillip in 1792 is still shown from the head of Woollomolloo Bay, (marked here in red) but it is paralleled by a newer line from the head of Rushcutters Bay, marking the extent of the expanded town southwards down to Cleveland Street (also shown in red), where new iron boundary markers were placed along the footpath. Map held by the Sydney City Council.
Fig. 2.8 Sydney Cove, Port Jackson, drawn by William Bradley, 1 March 1788. Mitchell Library, State Library of NSW. The encampment here shows some regularity in detail.
Surveyor-General Thomas Mitchell's Plan of Encampment, from his *Three Expeditions into the Interior of Eastern Australia*, 1839, vol 1, p.339. Mitchell arranged his camp around the boat-carriage, which formed a sort of field-work; the carts were drawn up in one line, the wheels close to each other; the light wagons and tents covered the flanks. The five fires were arranged carefully in fixed positions so that nothing could approach by night unseen by the people at the fires. The door of Mitchell's own tent was towards the meridian.

**KEY:**
1. Meridian line  
2. Mitchell's tent  
3. Larmer's tent  
4. Large tent  
5. Other tents  
6. Carts  
7. Heavy cart for sheep  
8. Boat carriage  
9. Light carts  
10. Compound  
11. Cook's fire
The Town of Tongabby (Toongabbie), c.1792. PROMR at CO 700.5, cited by J.S.Kerr, *Design for Convicts*, 1984. Here, again, the principal street is running east-west, with a cross-street north-south, a simple diagrammatic decumanus and cardo laid out according to ancient principles of surveying. The decumanus, following the passage of the sun from east to west, was wide, at 120 feet (36.5 metres). The cross-axis, the cardo, headed north across the creek to a barrack and store-house compound. The allotments measured 100 x 300 feet and the convicts' huts were ranged along the street in a regular way.
Fig. 2.11 'A western view of Toongabee', from David Collins, *An Account of the English Colony in New South Wales*, T. Cadell and W. Davies, London, 1804, p. 442. This view, engraved by Wm Lowry, was probably drawn by Thomas Watling. The little thatched huts are arranged in parallel rows and fenced off; an open cooking station with chimney was nearer the creek, and the other buildings are around the bend of the creek on the other side. It is hard to tell whether the space between the rows of huts was cultivated, but cultivation extends down to the creek.
CHAPTER THREE

FIGURES
Fig. 3.1. (a) William Bradley, Chart, S. End of Norfolk Island, (detail). Published by John Stockdale and included in Phillip's Voyage in 1789.
(b) Map of Norfolk Island, redrawn by J.S. Kerr, from the 'Plan of Settlers Lots', PROMR, MPG 1115, 1796.
(c) Phillipburg village, based on PROMR, MPG 1115, by J.S.Kerr.
(d) Queenboro' village, based on PROMG, MPG 1115, by J.S.Kerr.
Fig. 3.2 Charles Grimes, Plan of Sydney, Norfolk Island, May 10 1793. Public Record Office, London, MG at CO700 NSW.6. Redrawn by J.S.Kerr, 1984. The flag staffs are conspicuously marked, and the main street, or parade ground up to the Commandant’s House is about 60 feet wide. Church Street, the main cross street is only about 30 feet, and the others scale-off at 40-50 feet.

Fig. 3.3 Plan of Sydney on Norfolk Island, 1794, Public Record Office, London, MPG 299, at a slightly smaller scale, from J.S.Kerr, 1984. The flag staff on Mount George is the only one now; additional to the previous plan are the huts ranged along the shore line and up to the hospital; and there are two roads.
Fig. 3.4 William Neate Chapman, Plan of the Town of Sydney on the South side of Norfolk Island with the adjacent grounds. October 1796. Public Record Office, London MPG 1115. Redrawn by J.S. Kerr. It depicts the way the surrounding roads, buildings, and fields are surveyed and integrated with the town. The town itself, however, appears to have loosened in shape, and the streets, though defined, are not exactly marked.
Fig. 3.5 William Neate Chapman, 'View of Sydney on the South side of Norfolk Island', Mitchell Library (C688-2), Part. State Library of NSW. Signed and dated 1796. The original was found folded into a copy of Phillip's *Voyage*, which was owned by Governor John Hunter. It was translated into an etching for David Collins's book on the colony, 1798. (See Fig. 3.6). It is believed that Chapman made many more drawings of Norfolk Island which have since disappeared. Copies of some were made by John Eyre. (Figs. 3.8 and 3.9)
Fig. 3.6 View of Sydney on the South side of Norfolk Island, engraved by W. Lowry, but taken from an original drawing by William Neate Chapman, (see Fig. 3.5 above). Published in David Collins, *Account of the English Colony of NSW*, T. Cadell and W. Davies, London, 1798. Government House, as in the original, is approached by St George's Street which forms a parade space.
Fig. 3.7 William Neate Chapman, Plan of the Settler's Lots and the Ground Cultivated for the Publick on Norfolk Island, 1795. Dixon Library (Ca 79/3), State Library of NSW. The Coast Line is taken from Captn Bradley’s Chart. The Allotments & are reduced from the Deputy Surveyor's Plan. The different categories of land allotted to seamen, emancipists, and officers, as well as the ground cleared for the public are shown tinted. This map shows the structure of the settlement on the island, and can be compared with that in the County of Cumberland, NSW, at the same time.
Fig. 3.9  John Eyre, Phillipburg, Norfolk Island, c.1804. Watercolour after a now lost original attributed to William Neate Chapman. Mitchell Library, State Library of NSW, reproduced on the National Bank Calendar, 1965. A village of about 140 people on the north of the island near the wharf at Cascade Bay, built after the 'Sirius' disaster at Sydney Bay. Embryonic port functions with a flax-house, barn, storehouse and barracks, and its single line of houses.
Fig. 3.8 John Eyre, A View of Queenborough on Norfolk Island, 1801-4. Watercolour, believed copied from a drawing by William Neate Chapman, Mitchell Library, State Library of NSW. The village is depicted as a single line of houses, with some bigger buildings close by used as granary and barns. See Fig. 3.10 for details. Reproduced in Jocelyn Hackforth-Jones, *The Convict Artists*, Sydney, 1977.
Estimation of the Expence of Publick Buildings erected on Norfolk Island (calculating the labourer’s ration and cloathing at £19 p. annum.), exclusive of the value of materials, such as ironwork, paint, and glass, &c.

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N.B.—Exclusive of the above, several other smaller buildings have been erected by Government.

Fig. 3.10. Estimation of the Expence of Publick Buildings erected on Norfolk Island, submitted by Lieutenant-Governor King, 19 October, 1796. Historical Records of New South Wales, Vol.3, p.159. Extract.
Fig. 3.11 George Raper, Detail of a Plan of Arthur's Vale on Norfolk Island, September 1790, dedicated to Governor Phillip by Lieut. Raper in his stylish cartouche featuring the Norfolk Island Pine and the Flax-plant as emblems. Raper Collection, British Museum (Natural History), reproduced in B. Smith and A. Wheeler, *The Art of the First Fleet*, Oxford University Press, Melbourne, 1988. Arthur's Vale was good arable land cultivated for the public as a Government Farm alongside the town.
CHAPTER FOUR

FIGURES
Fig. 4.1 Sketch and Description of the Settlement at Sydney Cove Port Jackson in the County of Cumberland, 16th April, 1788 which was not quite 3 Months after Commodore Phillip's Landing there. Engraving 20 x 32 cm. Attributed to Francis Fowkes, published 24 July by J. Cribb 288 High Holborn, Neele Sculpt, Strand, London. An interesting unscaled pictorial map, which shows tents and buildings, cultivated plots, and the ships of the First Fleet. National Library, Canberra.
Fig. 4.2 (a) New South Wales, Port Jackson, from the entrance up to Sydney Cove taken in October 1788. Latitude 33.50 South, Longitude 151.25 East. Author unknown, pen and ink wash. British Museum (Natural History), London, Watling Collection. In the upper left-hand corner of the map, the settlement at Sydney Cove is depicted, showing tents drawn up in rows, and some buildings starting to appear. For enlarged detail see Fig. 4.2 (b).
Fig. 4.2 (b) Sydney Cove, October 1788. Detail of map of New South Wales, Port Jackson, from the entrance up to Sydney Cove. Pen and ink wash, British Museum, (Natural History), Watling Collection. This detail can be compared with the Bradley Map (Fig. 2.8), dated March 1788, and the Fowkes Map (Fig. 4.1) 16 April 1788. The Military have moved further up the western slope of the Cove, and the Governor and his small band of officials have occupied the eastern slope.
Fig. 4.3 Charles Grimes, Plan of the Settlements in New South Wales, 1796. (Part). Eight years after foundation, the alienated lands of the Colony start to form a patchwork pattern between Sydney and Mulgrave Place (later Windsor). Most of the parcels of land were of 30 acres, (13 ha) with larger parcels of 100 to 170 acres, (40.46 to 60.88 ha). There seems to be no effort here to define an urban-type space alongside or between the lots. Reprinted in Historical Records of New South Wales, vol.III, 1796–1799, ed F.M.Bladen, Govt Printer, Sydney, 1895.
Fig. 4.3 (b) Charles Grimes, detail of Mulgrave Place (later Windsor) on the Hawkesbury River, from the previous map of the Settlements in 1796. Again, there is no defined space for a village or town.
Fig. 4.4 Chart of the Harbour of Botany Bay, Port Jackson, and Broken Bay; shewing the Ground cultivated by the Colonists, with the Courses of the Rivers Hawkesbury, Nepean, &c. &c. Published May 1, 1802, by Cadell & Davies, Strand. From David Collins, An Account of the English Colony in New South Wales, Second Edition, London, 1804. The author is not mentioned, but it is comparable to Grimes's Map of 1796.
Fig. 4.5. Charles Grimes. Plan of Sydney. May 1800. Reproduced in Historical Records of New South Wales, Vol.5, 1897. foll. p.837. This plan details the lots by number and name, but omits the street lines. It might have been made in conjunction with the street plan, to complement it, and might have survived while the street plan has been lost.
Fig. 4.6. Charles-Alexander Lesueur and Charles Pierre Boullanger, Plan de la Ville de Sydney, Capital des Colonies Anglaises aux Terres Australes, September 1802. Drawn by Lesueur, engraved by Cloquet. Published in Paris in 1807 in Francois Peron, *Voyage de Dicouvertes aux Terres Australes... sur les Corvette le Geographe, le Naturaliste and le Casurina*, during 1800 to 1804. The original is held in the Museum at Le Havre, France, together with the accompanying topographical drawings. These are reproduced in Tim McCormick, *First Views of Australia, 1788–1825*, David Ell Press, Sydney, 1987.
Fig. 4.7 James Meehan, Plan of the Town of Sydney in New South Wales, by order of His Excellency Governor Bligh, 31st October 1807. Photolithograph of a mid-nineteenth century copy of the original manuscript map held by the Department of Lands, 52 x 34.5 cm, printed by the Government Printing Office, Sydney. The original maps by Meehan were probably sent to London by Bligh in 1807. A copy would have been retained in the colony, which was recopied later, and the originals are now lost. Though the most widely known of the early Sydney maps, this copy was reproduced as late as 1898, when it was included in *Historical Records of New South Wales*, vol. 6, opp p. 366. Note the continuance of Phillip's boundary line between Wolloomooloo Bay and the head of Cockle Bay (Darling Harbour).
Fig. 4.8 Annotated Plan based on Meehan's Plan of Sydney, 1807, redrawn by J.F. Campbell for his article 'The Valley of the Tank Stream', *Journal of the Royal Australian Historical Society*, vol. 10, pt. 2, 1924, pp. 63-102. This article contains an interesting discussion of Meehan's plan, and of the leasehold system in the town at that time.
Fig. 4.9 George William Evans. Plan of the Township of Parramatta, c. 1813. Mitchell Library, ZM2 811.1301/1813, State Library of NSW. A rare plan from Evans, copied by another hand. The town is broadly symmetrical and compact, with a key to leaseholders. The wide streets laid out by Dawes are ambiguously coloured, perhaps indicating that the process of narrowing them had begun after Macquarie had issued his Order, on 11 May 1811.
Fig. 4.10 T.L. Mitchell, Map of that part of the North Shore of Port Jackson which is opposite to Sydney. 1828. This version of the map was reproduced in John Sulman's book, Town Planning in Australia, 1921, p.16. Mitchell has taken his cardo (north-south axis) and embellished it with roundabouts and small squares, and tried to fit the plan to the topography. The plan was tentative, produced in the year when discussions were being held by the Governor and the Board he had appointed to consider the form of town plans to be laid out in the colony. This plan was probably a little too ambitious for its time and place.