

# The Excavation of Buildings in the Early Township of Parramatta, New South Wales, 1790–1820s

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*This paper describes the excavation of a convict hut, erected in 1790 in Parramatta, together with an adjoining contemporary out-building or enclosure. It discusses the evidence for repair, and secondary occupation by free persons, one of whom is tentatively identified. The site produced the first recognised examples of locally manufactured earthenware. The historical and archaeological evidence for pottery manufacture in New South Wales between 1790 and 1830 is contained in an appendix.*

## INTRODUCTION

In September 1788 the wheat crop failed at Sydney Cove and also at Norfolk Island, partly because the seed had not been properly stored during the voyage of the First Fleet. As soon as this was known the *Sirius* was sent to the Cape of Good Hope for both flour and seed grain.<sup>1</sup> Also in November 1788 an agricultural settlement was established at Rose Hill (Parramatta).<sup>2</sup> The intention was to clear sufficient land in advance of the ship's return, so that the grain could be immediately sown. The early settlement at Rose Hill was an attempt to save the penal colony from starvation, and necessitated the clearance of the best agricultural land then known. Fortunately the *Sirius* returned in May 1789, allowing the wheat to be sown in the months of June and July in the ground already prepared.<sup>3</sup>

This second settlement on the Australian mainland was located on the Parramatta River, at the limit of navigation on Port Jackson. It was 23 kilometres west of Sydney and by July 1789 consisted only of a redoubt, containing a barrack and provision store, located on the south bank of the River in an area known as the Crescent. There were also a number of huts for the convicts, and on the north bank a small house was erected for the Superintendent, together with a barn and granaries.<sup>4</sup>

The importance of Rose Hill at this time can be seen from the records of the first successful harvest in December 1789. The second settlement produced over 200 bushels (7280 litres) of wheat, about 35 bushels (1274 litres) of barley, and a small quantity of oats and maize, 'all of which was intended to be reserved for seed'. In contrast, at Sydney the ground at Farm Cove produced only 25 bushels (910 litres) of barley, as no other crop had been sown.<sup>5</sup>

It was only with the arrival of large numbers of convicts on board the ships of the Second Fleet in June 1790, that Governor Phillip decided to establish a township at Rose Hill, which he renamed Parramatta, after its native name.<sup>6</sup>

An opportunity to investigate the archaeological remains of buildings associated with the foundation of the township in 1790, was provided in early 1985 by the proposed development of a large site beside George Street, the principal street in the early township. The site forms all but the eastern frontage of the city block bounded by George, O'Connell, Macquarie and Marsden Streets, Parramatta, and is adjacent to Parramatta Park, originally the Domain of Government House, and also near the site of the 1788–1790 agricultural establishment (Fig. 1).<sup>7</sup>

Before any archaeological excavation could take place, it was necessary to research the development of the township from historical documentation, then to establish whether any items merited further investigation, and finally to ascertain whether any archaeological remains survived later development.

Preliminary historical research indicated that the area available for archaeological investigation was initially occupied by a number of huts for convict accommodation, and subsequently by residential development.<sup>8</sup> This paper is therefore mainly concerned with the development of convict and then domestic occupation in Parramatta.

## HISTORY OF PARRAMATTA TOWNSHIP 1790–1820s

### The foundation of the town, 1790

Watkin Tench gives one of the most informative reports on the progress of agriculture at the small settlement of Rose Hill in November 1790. Within this description he states that:

The view from the top of the wheat field takes in, except a narrow slip, the whole of the cleared land at Rose Hill. From not having before seen an opening of such extent for the last three years, this struck us as grand and capacious. The beautiful diversity of the ground (gentle hill and dale) would certainly be reckoned pretty in any country. Continued our walk and crossed the old field, which is intended to form part of the main street of the projected town.<sup>9</sup>

The last sentence of the above quotation clearly indicates why no clearance of trees or vegetation is mentioned in the historical documentation for the establishment of the town, and also pinpoints the previous centre of agricultural activity in 1789. Tench continued to describe the town itself:

The main street of the new town is already begun. It is to be a mile [1.6 km] long, and of such breadth as will make Pall-Mall and Portland-Place "hide their diminished heads". It contains at present 32 houses completed, of 24 feet by 12 [7.3 by 3.7 m] each, on the ground floor only, built of wattles plastered with clay, and thatched. Each house is divided into two rooms, in one of which is a fireplace and a brick chimney. These houses are designed for men only; and ten is the number of inhabitants allotted to each; but some of them now contain 12 or 14, for want of better accommodation. More are building; in a cross street stand nine houses for unmarried women: and exclusive of all these are several huts where convict families of good character are allowed to reside. Of public buildings, besides the old wooden barrack and store, there is a house of lath and plaister, 44 feet long by 16 [13.4

by 4.9 m] wide, on the ground floor only, with excellent out-houses and appurtenances attached to it. A new brick store-house, covered with tiles, 100 feet long by 24 [30.5 by 7.3 m] wide, is nearly completed and a house for the store-keeper. The first stone of the barrack, 100 feet long by 24 [30.5 by 7.3 m] wide, to which are intended to be added wings for the officers, was laid to-day. The situation of the barrack is judicious, being close to the store-house, and within a hundred and fifty yards [137.2 m] of the wharf, where all boats from Sydney unload. To what I have already enumerated, must be added an excellent barn, a granary, an inclosed yard to rear stock in, a commodious blacksmith's shop, and a most wretched hospital, totally destitute of every conveniency.<sup>10</sup>

### The town plan

Parramatta was the second township to be laid out in New South Wales after that of Sydney. Both were planned by Surveyor-General Augustus Alt and Lieutenant Dawes, however at Sydney the plan was not successfully adopted as settlement continued to follow the Tank Stream and the routes already established.<sup>11</sup> This was not the case at Parramatta, as its original town plan survives and is recognisable today. The main avenue of the township was one mile (1.6 km) long and 205 feet (62.5 m) wide, running in a straight line from the landing place or wharf to Government House on the rising ground. One contemporary plan of the town, dated to c.1792, indicates the widths of the streets and shows Main or High (now George) Street crossed

by two streets, namely Bridge (now Pitt) Street, and Cross or Church Street (Fig. 1). To the south of Main Street and parallel to it is South Street or Back Row (now Macquarie Street).<sup>12</sup>

In planning the town, Governor Phillip believed he was laying the foundation of an empire: 'to proceed on a narrow, confined scale, in a country of the extensive limits we possess, would be unpardonable: extent of empire demands grandeur of design'.<sup>13</sup> To illustrate this, one feature of the township was the size of the allotments and thus the wide dispersal of the houses. Garden allotments had been provided for all classes in the penal establishment, officers, garrison and convicts, since the commencement of the colony in 1788. Such gardens were intended for vegetable production, as these articles were not provided by the stores. The allotments at Parramatta, measuring 100 by 200 feet (30.5 by 61.0 m) were substantially larger than usual.<sup>14</sup> Governor Phillip asserted that the purpose for this was so that the convicts could work the land in their own time and thus profit by their ingenuity.<sup>15</sup> One other reason may have been to accommodate the grandiose plan for the town! Governor Phillip also believed in the eventual replacement of the convicts by settlers,<sup>16</sup> and thus planned sites for a town hall and market place, both necessary items for a growing town.<sup>17</sup>

### Huts for convicts

The huts for the convicts receive scant mention in the historical documentation after their initial construction. It is known that by December 1791 at least 100 were finished.<sup>18</sup> The next official mention is in a return of public buildings erected since October 1796, sent in despatches to England on 25 September 1800.<sup>19</sup> It stated as follows:

Repaired the government huts at Parramatta and Toongabbie, originally built by Governor Phillip for the reception of convicts on their arrival, but which had been some years neglected, and were now in a state of ruin. Many indeed had fallen down.

Finally, in a return of public works between 23 September 1800 and 31 December 1801 may be found the last mention of these huts: 'weather boarded 40 houses at Parramatta and Toongabbie, which were in ruins — building chimneys'.<sup>20</sup>

### Garden allotments

In some ways the garden allotments attached to the huts for convicts receive better mention. In December 1791 Watkin Tench noted:

in passing through the main street I was pleased to observe the gardens of the convicts look better than I had expected to find them. The vegetables in general are but mean, but the stalks of maize, with which they are interspersed, appear green and flourishing.<sup>21</sup>

In 1793 the Spanish botanist, Don Luis Nee wrote:

each house has its garden, where the tenant plants his vegetables, such as potatoes, tomatoes (*Solanum lycopersicum*), and the *Physalis pubescens* Linn. (Cape Gooseberry). Each resident is free to cultivate as much land as he can outside his own piece, and many of them have profited by this permission to plant vines, which have thriven in marvellous manner.<sup>22</sup>

Furthermore, in his book published in 1795, George Barrington, superintendent of the convicts at Parramatta, notes some aspects of the conditions for convicts in the huts:

In order to encourage the cultivation of gardens, Saturday is appropriated to clear away and cultivate spots of ground for themselves: and those who have been industrious find the benefit, by having plenty of vegetables, which saves them salt provisions, and enables them to truck with the natives for fish. Independent of this advantage, those who rear the greatest quantities of vegetables and plants receive provisions from the governor who, at the proper season of the year, distributes seeds among them for that purpose. The women sweep around the huts every morning, and cook the victuals for the men, collect all their dirty cloaths, and return each man his respective linen, washed and mended, on Sunday morning.<sup>23</sup>

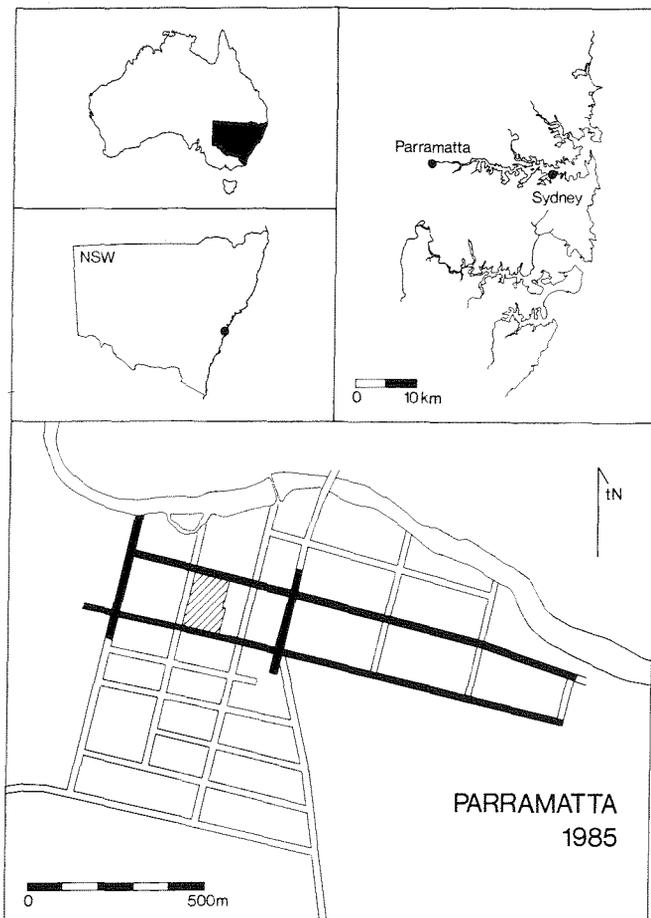


Fig. 1: Location and street layout of Parramatta, N.S.W. The street map shows the extent of the township by 1823. The site available for archaeological investigation is shaded. The east-west streets are named as follows from north to south: Phillip, George, Macquarie, Hunter, Argyle, Aird, Campbell, and Western Road. The north-south streets are named as follows from east to west: Harris, Charles, Smith, Church, Marsden, O'Connell, and Pitt Streets. The 1790 street layout is shown in black.

### The development of the town

As for the development of the township as a whole, its early pre-eminence is indicated by the population of the respective settlements in December 1791, namely 1259 persons at Sydney, 1172 on Norfolk Island, and 1628 at Parramatta.<sup>24</sup> Parramatta was taking on the appearance of a town by 1800. In spite of the settlement of the Hawkesbury River from 1794 onwards as the most important area for agricultural production, the town was 'well laid-out and consisted chiefly of prisoners' huts'.<sup>25</sup> In 1811 Governor Macquarie ordered the extension of Bridge (now Pitt) Street and the addition of Phillip Street. Later in the year Smith, Charles and Hunter Streets were also laid out.<sup>26</sup> In 1814 and 1815 James Meehan surveyed Argyle, Aird, Campbell and O'Connell Streets, the latter in anticipation of the extension of the Domain (Parramatta Park) by Governor Macquarie in 1815.<sup>27</sup>

### Town leases and grants

Little is known of the process whereby convicts were eventually replaced by free persons within the town. However, registered leases of town allotments commenced in Parramatta in 1796, the first being granted to John Macarthur, on land that was occupied by James Larra.<sup>28</sup> Most of the leases were situated on George, Macquarie and Church Streets.<sup>29</sup>

On 15 May 1811 Governor Macquarie, in an attempt to improve the rate of development and planning of towns, issued a Government and General Order, to the effect that nobody could build a house within the towns of Parramatta or Windsor without first submitting a plan to the magistrate resident in each town and that a town lease would not be granted until such a plan had been approved.<sup>30</sup> The effectiveness of this order may be called into question. For example, of the 101 leases (including 5 grants) issued or renewed in Parramatta between 1796 and 1823, 79 were registered before the governorship of Lachlan Macquarie, 21 on 1 January 1810, and only one other between 1811 and 1823.<sup>31</sup> It should be noted that all the town leases issued by Macquarie in 1810 contained a clause similar to the following:

to build a good and sufficient Dwelling House thereon within the space of Five years from the Date hereof Thirty Six feet [11.0 m] in length and fourteen feet [4.3 m] in width.<sup>32</sup>

Only two of the 1810 deeds, namely to Joseph Ward and James Larra, required larger brick or stone dwellings of 50 feet by 16 feet (15.2 by 4.9 m), and of two storeys, probably because they were outright grants.<sup>33</sup>

Clearly Macquarie's intention was to promote the investment of capital in property. The fact that only one town grant in Parramatta was registered after the Government Notice of 15 May 1811 must indicate the failure of this order. Indeed, James Meehan was able to report to Commissioner Bigge that during Macquarie's administration four-fifths of the houses in Parramatta were held by permissive occupancy alone.<sup>34</sup>

The unwillingness of the population to invest large sums of money in property with insecure leasehold title, may be an explanation of the failure of the 1811 government order. The opportunity to gain secure title to town allotments arose in 1823 with the issuing by Governor Brisbane of a Government Order on 3 May, which offered formal leases to those who applied within three weeks.<sup>35</sup> The advantage of these leases was that they could be converted into grants by a mechanism known as 21 years purchase. In other words, by paying 21 years quit rent in advance the lease could be converted into a grant in fee simple. An alternative method of receiving a town grant was to erect buildings in excess of 1000 pounds sterling in value. With this opportunity made available to them, the inhabitants of Parramatta formally leased almost the whole of the township in June 1823!<sup>36</sup>

## POTENTIAL SIGNIFICANCE OF ARCHAEOLOGICAL REMAINS

One of the most important consequences of the considerable number of town leases that were registered in June 1823, is that a large part of the population of Parramatta, who had previously held allotments by permissive occupancy, suddenly enter the historical record. Previously without registered leases, the inhabitants and their respective occupations were largely unknown or at most only understood in brief outline. In other words, many inhabitants of Parramatta before 1823 verge on being historically invisible, so that information on the development of the town between 1790 and 1823 must rely heavily on archaeological evidence.

The excavation of the site of one or more convict huts and their respective allotments could, therefore, be expected to reveal substantial new evidence on a variety of topics. Although the general materials used in construction are known, excavation might shed light on construction details, alterations, repairs, and the survival of this type of structure. Similarly, artifactual and structural remains might provide evidence of the living conditions of the convicts, the way of life of other occupants, and any changes in the use of these huts, for example conversion from convict dwellings to housing for free or emancipated persons. In addition, the excavation might record changes in the allotment boundaries and the layout of items within each allotment (fences, wells, garden plots, buildings, out-buildings).

However, perhaps one of the most interesting contributions that archaeological excavation might make relates to the development of the town. It may reveal relationships between social status, financial investment of capital, land tenure, and land use, and it is these issues which directly relate to current research themes in history and archaeology.<sup>37</sup>

Apart from these considerations, although the huts erected for the convicts at Parramatta were a type of building that was both numerous and widespread in both of the early settlements, their survival other than as archaeological remains is impossible. In addition, modern development in both Sydney and Parramatta is making it extremely unlikely that the site of any one of these huts remains undisturbed, even if the difficulty of their accurate location can be solved. The method adopted to overcome this at Parramatta will be discussed below, but all these factors combine to make the opportunity for archaeological excavation so rare, and the potential rewards so great, as not to be missed.

## LOCATION AND SURVIVAL OF ARCHAEOLOGICAL REMAINS

Historical documentation indicates that there were convict huts erected on both the George and Macquarie Street frontages.<sup>38</sup> The proposal to excavate along the Macquarie Street frontage was, however, abandoned at an early stage because historical evidence and site survey indicated substantial later disturbance. The central portion of the George Street frontage of the site remained as the only option.<sup>39</sup>

In order to locate the convict huts it was necessary to reconstruct the original town plan from 1790–1792 and accurately overlay it onto the modern site. Detailed research indicated the following:<sup>40</sup>

1. The allotments measured 100 feet by 200 feet (30.5 by 61.0 m).
2. There were 14 allotments between Church and Pitt Street on the south side of George Street.

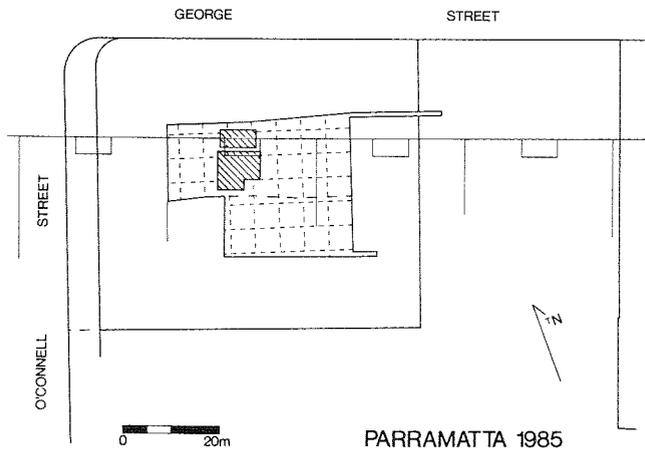


Fig. 2: Site plan showing location of excavation. The north-eastern corner of the site is being developed by the Department of Housing and Construction as the Law Courts, the remainder by Leighton Contractors as the Commonwealth Government Office Block. The two lines along the O'Connell Street frontage indicate the proposed street widening. Behind the George Street frontage, the original 1790 frontage is shown, with the allotment boundaries and house sites. The archaeological remains of Building 1 nearly coincide with the presumed position of one of the convict huts and the remains of Building 2 are located behind it (hatched). The total area excavated by machine is divided into a 5-metre-square grid, while manual excavation was concentrated to the north of the broken line.

3. The present distance between Church and Pitt Street (originally extending through Parramatta Park to and beyond George Street, and still visible as a raised causeway), taking into account original street widths, is approximately 1400 feet (426.7 m) and confirms the evidence for fourteen 100 feet (30.5 m) wide allotments.
4. George Street was originally 205 feet (62.5 m) wide.
5. One hut was placed in a central position on the frontage of each allotment.
6. The positions of George, Pitt and Church Streets have remained substantially the same since 1790.

From the above information, the position of the convict huts and allotments could be marked on a plan of the site (Fig. 2). It was this plan that determined the position of the archaeological excavation to be described below.

## THE ARCHAEOLOGICAL EXCAVATION

Previous research and site survey indicated that only the central portion of the George Street frontage was likely to have remained sufficiently undisturbed by later development to allow for the survival of the convict huts as archaeological remains. This suggested that two huts could be investigated, namely the pair in the middle of the frontage (Fig. 2).

Because of a September 1985 deadline imposed by development, the archaeological excavation had to be undertaken speedily. Therefore it was decided to open up an area large enough to allow for the archaeological inspection of both buildings. An area measuring 150 feet (approximately 45 m) long, parallel to the street frontage, and 100 feet (approximately 30 m) wide, was proposed. Geotechnical surveys indicated a minimum depth of 0.75 m overburden above the archaeological remains, clearly demanding in the time available that the site should be opened up by mechanical rather than by manual excavation.<sup>41</sup>

It was proposed that the excavation should commence 20 feet (approximately 6 m) north of the original George Street

frontage, in order to make certain that the buildings should be well within the area. Using a mechanical excavator and working from the present surface, it was decided that a trial trench should be opened up along the northern boundary of the proposed area excavation. Its purpose was to expose the archaeological stratigraphy and establish the appropriate depth for further mechanical excavation. It was also felt that the trial trench would be clear of any early remains behind the original street frontage.

The excavation of the trial trench indicated that the site of one of the buildings (the eastern one of the central pair in Fig. 2) was destroyed by later disturbance. Consequently, no further excavation was undertaken in this vicinity, although the remaining area was opened up as proposed. To compensate for the area lost, the trench was extended westwards to the limit of undisturbed deposits.

The total area excavated by machine measured approximately 915 m<sup>2</sup>. Time constraints only allowed for the manual excavation of the northern part of the site, namely approximately 540 m<sup>2</sup>, during the six week excavation in July and August 1985. It was in this area that the remains of one convict hut was discovered, and totally unexpected, the remains of another contemporary structure directly behind it (Fig. 3).

Mechanical excavation revealed that archaeological remains of early structures were totally destroyed beyond the eastern and western boundaries of the site. Furthermore, the whole area was covered with a layer of demolition rubble and other modern material, indicating that the site had been recently levelled. Beneath this layer, topsoil survived only in the northern part of the excavation, whereas elsewhere it had

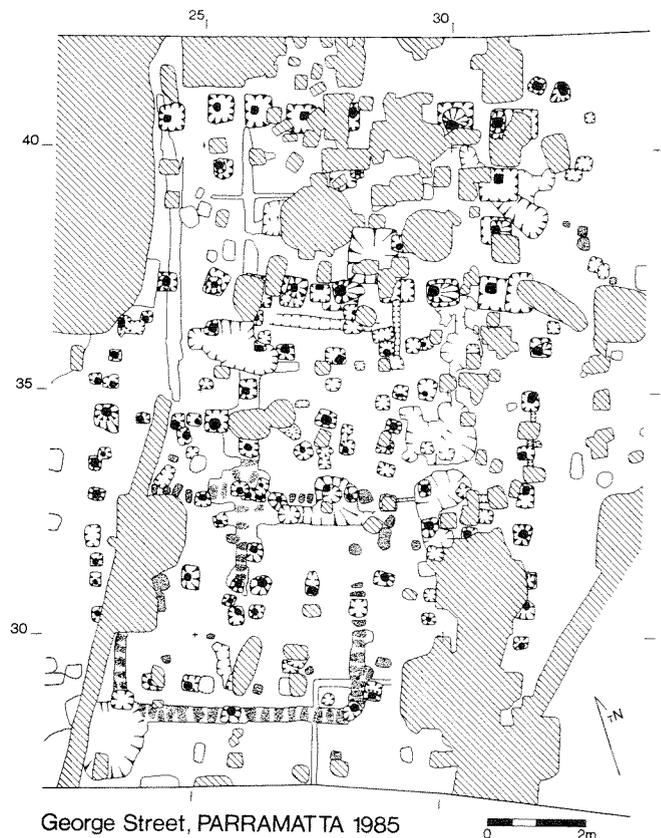


Fig. 3: Plan of a part of the area excavation showing the remains of the early buildings. The hatched features represent modern disturbance, which has cut through and destroyed earlier features. The early features consist of post-holes (posts are shaded black), pits, shallow depressions, and slots. The stippled features represent only a small number of the regularly spaced spade-marks. The earlier features may be seen more clearly in Figure 4.

been removed by the levelling mentioned above, leaving only the subsoil sand that forms part of the alluvial plain (sands, clays, and gravels) of the Parramatta River.<sup>42</sup> Below the modern disturbance and cutting into the remaining topsoil and subsoil, where numerous recent archaeological features, but these were mainly concentrated in the southern and eastern part of the site.<sup>43</sup>

As a labour-saving technique, mechanical excavation removed both the upper layer of demolition rubble and most of the topsoil layer. Only modern features containing material brought onto the site (brick, cinder, modern artifacts, etc.) could be seen cutting into the topsoil, so that its removal was not considered to have caused any substantial loss of archaeological evidence.

With the completion of mechanical excavation and the opening up of the area, manual excavation by a small team of archaeologists could commence. Within the area opened up, the priority was to investigate along the original street frontage and this area was cleared (shovel cleaning, followed by trowelling), recorded, levelled and planned (Fig. 2). The distribution of small fragments of sandstock brick, whose composition was characteristic of those manufactured prior to the 1820s, was noted and recorded on plan. Their distribution was concentrated in the area where subsequently the two early structures were excavated.

Since no consistent series of early features could be recognised in the topsoil above its interface with subsoil sand, the next stage of the manual excavation consisted of the removal of the remaining topsoil profile by shovel cleaning and trowelling. In several cases further trowelling was necessary to define clearly all those features cut into the natural sand. The site was then photographed, levelled, recorded and planned for a second time. At this stage it was clear that part of the site was heavily disturbed by modern features and would not require further detailed excavation. On the other hand, a large number of possibly early features could be recognised cutting into natural sand and they were restricted to the area illustrated in Figure 3. It was this area which received full attention during the remaining time available for the excavation. This area was almost completely excavated, apart from a small number of features at its south-eastern corner, and also excepting some obviously modern features which did not cut earlier ones.

#### Disturbance of the topsoil profile

The absence of any discernible early features in the topsoil profile, led to the hypothesis that it had been heavily disturbed after the early structures had been removed. This was tested during excavation in the following manner. All artifactual material from the topsoil profile was collected, and differentiated from artifacts from features cutting into the topsoil. The artifacts from the topsoil profile could be dated from the earliest to the most recent period, thus demonstrating that this layer had been thoroughly disturbed by cultivation or other means. Further confirmation was received of cultivation when an abundance of spade marks was recognised cutting into the natural sand and filled with topsoil. These marks could not be easily dated but were concentrated to the south and east of the structure on the original George Street frontage.

It must be concluded, therefore, that the archaeological remains of any early structures have been truncated to the base of the topsoil profile. In other words, the archaeologist is only able to perceive those remains which penetrated between 200 and 300 mm below the original ground surface.<sup>44</sup> This factor was expected to a certain extent and must of course restrict the archaeological information that has survived.<sup>45</sup>

#### Horizontal stratigraphy

Confronted with a large number of archaeological features cut into natural sand, some stratigraphically related but most not, the methods of *horizontal stratigraphy* had to be adopted to sort out and provisionally date each feature. A plan was made of the features as they were exposed and before they were excavated and for each feature a number of items were recorded on the plan. These included the proportion of each soil type and other components as follows:

Soil types	— topsoil
	— yellow sand
	— orange sand
	— grey sand
	— grey clay <sup>46</sup>
Other components	— cinder
	— sandstock brick without frog, or <i>flat sandstock</i> <sup>47</sup>
	— modern brick, either dry-pressed or semi-plastic
	— bone concentrations
	— artifacts
	— charcoal

The completed plan, which is not published here but remains among the site records, provided an important initial tool whereby an understanding of the archaeological remains was gained.

The proportions of each component, especially since they were based on information gained prior to the excavation of each feature, cannot be considered as more than a rough estimate. Nonetheless, the presence or absence of various components was interpreted as being diagnostic for dating purposes. For example, grey sand, grey clay, and flat sandstock brick were considered to indicate early features. It was suspected that the grey clay, which is not found naturally on the site, was used for plastering walls (wattle and daub). In contrast, later features were characterised by the presence of cinder, modern brick, other modern artifacts and bone concentrations. The latter were restricted to a small number of pits, frequently associated with other modern components, and comprised mainly well-preserved chicken bones. Clearly the context was modern.

#### The excavation of early features, 1790–1820s

The next stage of the archaeological investigation comprised the excavation of most of the features illustrated in Figure 3. On the basis of fill and artifactual evidence, all the features could be divided into two main periods, namely early and modern. These will be defined in more detail below, but provisionally the early period may be dated from 1790 to the 1820s, the modern period from the mid-nineteenth century to the present day. Features from the latter period will not be described in this paper but are considered in detail in the archival report and site records.<sup>48</sup>

Excavation revealed that the early features fell into a limited number of categories, namely:<sup>49</sup>

- post-holes — Group 1 (Building 1)
- Group 2 (Building 2)
- pits
- shallow depressions
- trenches or slots — narrow
- broad
- spade-marks

*Post-holes, Group 1 (Building 1):* Group 1 post-holes varied from square to subrectangular with near vertical sides and flattish bases. The post-pipes varied from being circular to subrectangular. They were generally larger and cut to a greater depth than Group 2 post-holes.

The post-holes in this group were restricted to a rectangular outline in the northern part of the area intensively excavated

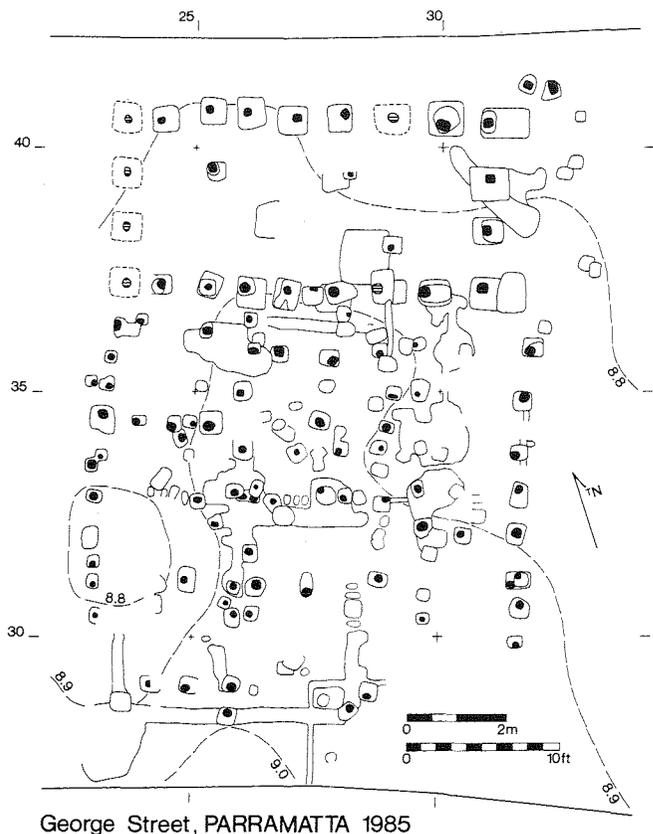


Fig. 4: Simplified archaeological plan of Buildings 1 and 2, excluding more recent features. Building 1 (Group 1 post-holes) is formed by a rectangle of square and subrectangular post-holes, and is located to the north of Building 2 (Group 2 post-holes), consisting of smaller circular to subrectangular post-holes. Note that the west wall of Building 1 is reconstructed using four post-holes, and that two other post-holes (hatched) are presumed.

(Fig. 4). Ten out of the seventeen post-holes in this group contained evidence of being recut, thus indicating the re-erection or replacement of these posts. Building 1 is, therefore, divided into Phases 1 and 2.

**Post-holes, Group 2 (Building 2):** Group 2 post-holes varied from circular to subrectangular, and from near vertical sides and flattish bases to sloping sides and a rounded base. The post-pipes were circular to subrectangular, and only three showed any evidence of a recut. This indicates that this structure (or structures) was never substantially repaired or rebuilt.

Group 2 post-holes formed the remainder of the post-holes excavated and were concentrated in an area directly to the south of Building 1. Some Group 2 post-holes, however, are located to the east and within Building 1 (Fig. 4). Group 2 post-holes were closely associated with other categories of archaeological feature, including shallow depressions, trenches and slots.

The main concentration of Group 2 post-holes is considered to define a second structure, namely Building 2. Both Buildings 1 and 2 appear to have been contemporary. Evidence to confirm this hypothesis is not only found in the similar fill and artifactual material but also in the juxtaposition of the two structures (Fig. 5).

**Pits:** Only a small group of pits which belonged to this early period could be identified. Two of these may have been Group 1 post-holes, since the post-pipe may have been destroyed by later disturbance. Both of these were found within Building 1. A small number of other pits, in which no

post-pipe was recognised, may have belonged to Group 2 post-holes.

This leaves only two other pits, which were certainly not post-holes. The first was located within the south wall of Building 1 (Fig. 4). It was subrectangular in shape, with steeply sloping sides and a flattish base, and had three fill layers. From the irregularities of the fill, it appears the pit may have been dug and then rapidly refilled. Very little was found within the pit, apart from pieces of flat sandstock brick and a thick lens of charcoal.

The stratigraphic relationship between this pit and Building 1 had been destroyed by later disturbance. Indeed, the pit had been cut by seven or eight features, and must have been one of the earliest on the site. It is possible that it was cut by a recut Group 1 post-hole. The pit respected the south wall of Building 1 and what evidence there is points to contemporaneity.

Apart from the artifacts within it, the second pit had more in common with the category of shallow depressions and will therefore be described under that heading. It was located on the north side of Building 2, towards its north-western corner (Fig. 4).

**Shallow depressions:** A number of irregular shallow depressions were located mostly within Building 2. In all cases they represented the bases of features that were cut into topsoil, the upper portions of which had disappeared as a result of the later disturbance of topsoil.

The shallow depression in Building 1 was located on its east wall, and covered a Group 1 post-hole, which in turn cut a lozenge-shaped feature. The latter feature contained a well-defined but burnt log, so that a large amount of charcoal was present. The burnt log may have represented forest clearance prior to the construction of Building 1. Neither the burnt log nor the post-hole were well defined until the fill of the shallow depression was removed. This latter contained large quantities of grey clay and charcoal and was initially interpreted as a fireplace. Subsequently the presence of large amounts of charcoal could be explained equally by a fireplace or by the presence of the burnt log below. However, the quantity of grey clay could not have been derived from the post-hole alone, and did suggest the base of another feature however ill-defined.

All of the remaining shallow depressions contained varying quantities of grey clay, but were concentrated in the area of Building 2: three in a north-south line towards its eastern wall, another on its north side, and another two being associated with trenches or slots on the south side of the building (Fig. 4). All had irregular sides and bases, and contained within them the bases of one or more Group 2 post-holes or pits. The latter only became visible with the excavation of the shallow depressions, and had similar fill. Both the depressions, pits and post-holes must, therefore, be regarded as stratigraphically contemporary.

**Slots, trenches and spade-marks:** Slots and trenches fell into three distinct sub-categories. The first was represented by two linear features (Fig. 3) formed by concretions in the topsoil and subsoil irrespective of the boundaries of archaeological features. These concretions were explained by natural processes.<sup>50</sup> The remaining two sub-categories were broad and narrow linear slots respectively (Figs 3 & 4). The narrow slots represented features that were cut barely to the base of the topsoil profile, and, therefore, their total distribution on site may not have been archaeologically visible. In most cases, the narrow slots appeared to be cut by Group 2 post-holes, but in one case the fill was undifferentiated, suggesting contemporaneity.

The broader slots also only just penetrated the subsoil and their distribution was closely related to Group 2 post-holes (Fig. 4). In the example on the south side of Building 2 the slot was not only associated with Group 2 post-holes, set at



*Fig. 5: Building 2 (Group 2 post-holes) is in the foreground of this photograph, and Building 1 is in the background at the northern end of the site. George Street is beyond the excavation. Scale 1 m, with 500 mm divisions.*

regular intervals within it, but its irregular base was also formed by well-defined spade-marks. Unfortunately, this slot was one of the last features excavated on the site. Previous to this time no pattern in the spade-marks cutting into sand had been noted. Careful observation confirmed that the majority were irregularly placed, but also demonstrated that a number may have formed the bases of linear slots, which were otherwise unrecognisable. The distribution of a number of regularly placed spade-marks is illustrated in Figures 3 and 4, but it must be noted that this distribution does not include the majority of apparently randomly placed spade-marks.<sup>51</sup>

#### **Artifactual evidence**

Only a very limited range and number of artifacts were recovered from the post-holes or other features associated with either of the two early buildings.<sup>52</sup> This was in contrast to the quantity and wide range of artifacts from later features and from topsoil. Although one would not necessarily expect a large amount of material to have been discarded in post-holes, nonetheless the paucity of material culture is unusual and will be discussed below.

**Building materials:** Building materials recovered included flat sandstock brick, clay tile, window glass, nails and possibly sandstone or shale. The sandstock brick is of a type that could have been manufactured up to the 1820s, although its production may have continued later in less developed areas.<sup>53</sup> However, it is more closely associated with the cream and red-coloured bricks used in the construction of Old Government House at Parramatta from 1790 onwards.<sup>54</sup> Historical documentation described above indicates that Building 1, at least, may have had a brick chimney, although no definite trace of it was discovered during the excavation. Alternatively, the brick may have been used nearby and only subsequently discarded on the site.

The clay tiles found in both buildings are identical to those already found at First Government House, Sydney; Elizabeth Farm, Parramatta; and Old Government House, Parramatta. The first roof tiles were manufactured in 1788

for Government House, Sydney,<sup>55</sup> and tile production seems to have continued into the 1790s, after which more successful roofing techniques became common.<sup>56</sup> As with the bricks, there are two possibilities: the tiles were used on site, or were used elsewhere and discarded on site. The tiles may not have been used for roofing, although that may have been the primary purpose; they could also have been used in general brickwork, for example in forming arches.

Other building materials included iron nails and window glass. All the nails are in a very corroded condition but generally have a squarish section. They may have been hand-wrought or cut from a nail plate, and may be classed as flooring brads or horseshoe nails. This type of nail was in common use in building construction for a variety of purposes until the 1830s.<sup>57</sup> The larger number of nails found in Building 2 may imply an improvement in construction or perhaps different building techniques: for example, the use of shingles, weatherboarding or timber floors.

Only a small number of fragments of window glass were found. They are all of a slightly greenish-blue tinge, and the thickest piece is less than 2 mm thick. Only one original edge is preserved but shows doubtful traces of the use of putty or similar material. The amount of glass recovered is only sufficient to cover an area of 0.005 m<sup>2</sup>. Such glass may not only have been used in glazing windows, but also in small, framed pictures or other articles.

**Earthenware:** Only 30 fragments of earthenware, out of a total of 175 sherds, were found in archaeological contexts associated with Buildings 1 and 2. The remainder were residual artifacts in more recent features and in topsoil. None of the earthenware associated with the buildings was glazed, although a small proportion of the residual material was lead glazed. All the pottery was wheel made.

The earthenware was divided into four provisional categories, namely:

1. Poorly fired white to very pale brown ware, unglazed, mostly without slip.
2. Poorly mixed pink to reddish yellow ware, unglazed, without slip.
3. Poorly mixed yellow to reddish yellow ware, unglazed, slipped (splashes of lead glaze on one example).
4. Poorly mixed very pale brown to reddish yellow ware, mostly internal but some external lead glaze.

None of these categories is described in detail in this paper, as full descriptions are given in the archival report.<sup>58</sup> All of the types that were identified are illustrated in Figure 6, with the exception of Category 1, Type 6, shown in Figure 7, and two other types, the fragments of which were too small for accurate drawing of the type (Category 1, Type 1, shallow dish; Category 4, Type 5, handle of a cup or mug).

The provisional division of the earthenware into four categories may reflect stages in the manufacturing process. For example, Categories 1 and 2 may be the biscuit firing prior to the application of lead glaze in Category 4. In addition Category 4 articles may have been only partially glazed, so that Category 3 may represent only the unglazed portions of Category 4 articles. The obvious conclusion to be

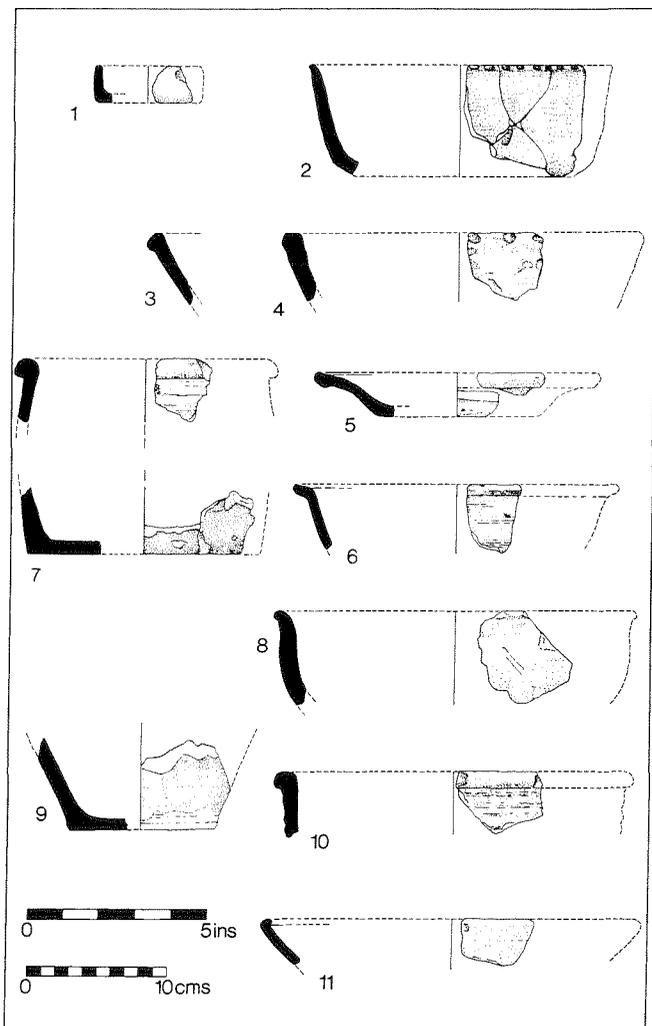


Fig. 6: Earthenware pottery recovered from the vicinity of Buildings 1 and 2. Items 1 to 11 are as follows: Category 1, Type 4; 1,1; 1,2 (similar to 4,1); 1,3; 1,5; 2,2; 4,2; 2,3; 4,3; 3,1; 4,4.



Fig. 7: Earthenware mug, unglazed, without slip. Rim diameter 102 mm (4 inches), and height 70 mm (2.75 inches). Its squat appearance, sides with uneven thickness, and thick base, indicate that it is an apprentice piece made by a relatively unskilled potter. Category 1, Type 6.

drawn from the above, is that the site was close to a pottery.<sup>59</sup> There are, however, various difficulties with this hypothesis, namely the absence of other materials associated with potteries, for example, wasters, seconds and kiln furniture. Furthermore, the low frequency of similar types between categories argues against their inter-relationship, and finally, it has been suggested that lead-glazed pottery of this quality could have been produced in a single firing.<sup>60</sup>

The more likely solution is that the predominance of unglazed pottery is indicative of an early date of production, since glazing materials were not available until imported from England.<sup>61</sup> In other words, the four categories of earthenware need not represent stages in production, but wares that may have been produced in a number of potteries and marketed over a period of time from the 1790s onwards.

However, the most important consideration with regard to the earthenware from Parramatta, is the likelihood that it represents some of the first pottery locally produced in Australia. The full significance of this assertion is discussed in an appendix to this paper, which examines historical and archaeological evidence for earthenware manufacture in New South Wales from 1791 to c.1830.

**Creamware:** Only four small fragments of earthenware with a fine paste and clear glaze were recovered from Buildings 1 and 2, two of which may belong to a tea-cup or similar article. Creamware was manufactured in England from the 1760s onwards.<sup>62</sup>

**Chinese porcelain:** Twelve fragments of Chinese porcelain were found in Building 2, and eight of these were located in one pit or shallow depression beside the north wall near its western end. The eight fragments comprise three vessels: two fine porcelain tea bowls, one dating from c.1725 to 1800, the other from the eighteenth or nineteenth centuries, and a large bowl of late Ming date (1368–1644), being a piece designed for the South-East Asian market (Fig. 8). An attempt had been made to repair one of the tea bowls by crudely piercing a small hole. The remaining four porcelain fragments are from two vessels, probably dating to the seventeenth or eighteenth centuries, and they probably formed part of tea-sets.<sup>63</sup>

**Clay-pipes:** Only a small number of pipes for tobacco smoking were discovered, namely two small fragments of pipe-stem and one stem and bowl fragment with pointed spur or heel.

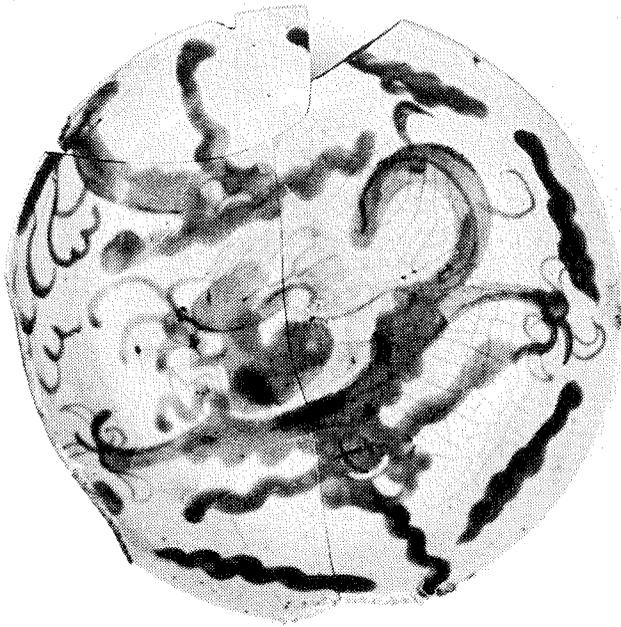


Fig. 8: Chinese export ware: porcelain bowl, blue underglaze, late Ming (1368–1644). Rim diameter 203 mm (8 inches), height 42 mm (1.7 inches).

A further piece was found in the same pit as the porcelain mentioned above. It is made of fine earthenware rather than the usual white clay, and is a socket-stem pipe. Its external surface has been shaped with a knife. It is possibly a locally produced article, and can be compared in colour to the local earthenware.

**Glass:** A number of small fragments of green bottle glass were located, along with five fragments of clear glass. The green glass represents both square gins and ordinary bottles, the small size of the fragments precluding further comment, other than to state that they were types commonly produced in the late eighteenth to early nineteenth century.

The five fragments of clear glass all came from the same pit as the porcelain and the tobacco pipe mentioned above, and form a small beaker. The glass is slightly smoky, with opalescence, and appears to be worn. As with one of the porcelain tea bowls, the glass has been crudely repaired by piercing holes for wire or rivets.

**Iron fragments:** Apart from nails, very few iron articles were located in the two buildings, other than several fragments of barrel hoop.

**Other artifacts,** or rather materials exploited by the European colonists, include bone and shell. In addition, a number of silcrete and chert flakes were recovered, indicating Aboriginal occupation, probably at a date substantially earlier than European settlement at Parramatta.<sup>64</sup>

**More recent artifacts:** A wide range and large quantity of artifacts were recovered from recent features and topsoil. A general date-range from the mid-nineteenth century onwards is apparent. The material has not been studied in detail, but may contain other artifacts belonging to the period of Buildings 1 and 2 (for example, blue on white earthenware).

## INTERPRETATION OF ARCHAEOLOGICAL FEATURES

### The identification of Building 1

From the several categories of archaeological features that have been recognised and described above, two groups of

structural elements can be recognised, namely Buildings 1 and 2.

It is the agreement between the historical and archaeological evidence that allows Building 1 to be identified as one of the huts built for convicts in the early 1790s:

1. Building 1 was located on the original street frontage and was within 2 m of its position as predicted by the historical documentation.
2. The archaeological evidence for the size and construction techniques of Building 1, agrees with the historical evidence for convict huts. Unfortunately, the western wall of Building 1 had been destroyed by a modern disturbance but clearly the building ended somewhere within this feature, as no post-holes were located beyond the disturbance. The original length of the building must, therefore, have measured between 7.2 and 10 m (23 feet 7 inches and 32 feet 10 inches). The width of the building varied between 3.5 and 3.8 m (11 feet 6 inches to 12 feet 5 inches). Such dimensions equate well with the historical evidence for huts measuring 12 feet by 24 feet.
3. The artifactual evidence is consistent with the 1790–1820s date for the convict huts, derived from historical documentation.

The identification of Building 1 confirms the calculations made from historical evidence, concerning the size of the town allotments and their regular layout. It shows that, at least on this part of George Street, the allotments were not unduly displaced from their geometric layout by natural features such as creeks and gullies. Furthermore, the placement of the huts central to the frontage of the allotment is demonstrated in this case. The slight discrepancy between the presumed and actual position can be explained by the nominal changes in the alignment of the streets since their initial layout (Fig. 2).

### Convict housing

The best available description of the huts built for the accommodation of convicts is the one given by Trench at the beginning of this paper. It indicates the overall dimensions of each hut, as well as referring to wattle and daub walls, the division into two rooms, a brick chimney at one end, and a thatched roof. The archaeological evidence augments this description. For example, the post-holes indicate that it was a post-built structure, rather than having corner posts and sill-beams, infilled with wattle and daub. The post construction may have left the slender saplings of the wattles exposed or even dug into the soil, resulting in rapid decay. Sill-beam construction implies either slab or framed wall panels, the latter being a more sophisticated building technique used in many medieval or later buildings in England. The fact that it was not used is an indication of the primitive nature of early construction in New South Wales for this type of building. Absence of wall footings in brick or stone seriously shortened the life of these temporary buildings, providing no barrier against damp or white ants.

The archaeological evidence confirms the use of only one of the building techniques described by Trench, namely the wattle-and-daub walling, which accounts for the quantity of grey clay in the post-holes of Building 1, Phases 1 and 2. The archaeological evidence cannot confirm Trench's statement regarding thatched roofing or the brick chimney. As discussed above, no actual brick footings of a chimney were located in Building 1, although the remains implied a feature at the east end of the hut. Unfortunately, the western wall had been destroyed. In fact, no recognisable remains of a fireplace were found in either building, although it is highly likely that at least one was originally constructed. It may be concluded that a chimney of brick or other material was

present, but that its footings were insubstantial, and have been destroyed by later disturbance.

The post-holes within the walls of Building 1 may be evidence for an internal partition or other fittings. The evidence is, however, inconclusive and reliance must again be placed on comparative historical evidence. In many illustrations of this type of building, including Collins' view of Parramatta,<sup>65</sup> there is a centrally placed doorway and two flanking windows. The internal partition, if it existed, would have been set to one side of this doorway, forming two rooms of unequal size. The archaeological evidence would suggest that such a partition might not have existed in this case, or alternatively may not be visible archaeologically.

According to Tench, each hut was supposed to accommodate ten convicts but in November 1790 some housed between twelve and fourteen, for want of other buildings. It is difficult to assess how ten or more convicts were housed in such a small space, or to establish the sleeping arrangements. Conditions were certainly cramped. Various alternatives for sleeping include hammocks, bunks, wooden platforms or simply sleeping on the floor. Hammocks would have been the logical choice since convicts would have become well acquainted with them on their voyage to New South Wales. The subsequent disturbance of topsoil has removed any evidence of flooring, and it must be concluded that the floor (if any) was of crude design: stamped earth, clay, or split timber laid directly on the ground.<sup>66</sup>

In conclusion, the convict huts were crudely made buildings using simple and readily available building materials. Thatch may have been used because no other material was available or recognised. It is clear that clay tiles were reserved at an early stage for the more important public buildings, including storehouses, the contents of which were of heightened value because of the uncertainty of supply from Britain. In later years, thatch, and wattle and daub, were replaced by more successful materials: shingles and bark sheets for roofing, and weatherboards or slabs for walling. However, at this early stage, the housing of the convicts indicated the transplanting of simple and cheap traditional building techniques into an alien environment, with little or no adaptation. These buildings reflected local abundance of timber and other materials, while little use was made of imported items already in short supply.

### **The interpretation of Building 2**

Although Building 1 can be identified by historical documentation, Building 2 is not mentioned. Illustrations such as Collins' view of Parramatta, hint at the presence of outbuildings but these are only of small size.<sup>67</sup> The archaeological remains of Building 2, which is of equal if not greater size than Building 1, provide evidence that was previously unsuspected.

The rectangle formed by Group 2 post-holes (Building 2) and associated shallow depressions, trenches or slots, and spade-marks, is difficult to interpret. Only the eastern and western sides of this structure were well defined, although at least two other distinct lines of post-holes parallel to the two side walls could be seen evenly placed within the rectangle. The north and south sides were not well defined by lines of post-holes, although the north side clearly respects the south wall of Building 1 (Fig. 4).

The broad slots or trenches, together with the spade-marks, appeared to define a rectangular area, which respected both the north and west sides of the rectangle of Group 2 post-holes, and one north-south internal division. There was also some indication of a slot along the east wall.

The problem with any interpretation is that undoubtedly there will be a number of archaeological features which do not fit into a particular structural design or type. Ancillary structures may be present, or alternatively a number of internal divisions. It is unlikely that a raised timber floor was present in either building on this site, so internal post-holes may not be interpreted as piers or footings. One must seriously question that there may be latent within the archaeological record the remains of several structures rather than just one. However, it is very difficult to establish any sound basis for such an hypothesis due to the near complete predominance of horizontal stratigraphy. Only in a few instances could any Group 2 post-hole be shown to be cutting another, and where groups of features occurred together they were more often stratigraphically contemporary. The question whether this renders the multi-structure hypothesis untenable cannot be readily answered.

Furthermore, the absence of any recognisable archaeological features in the topsoil profile was a serious constraint. Only those features which were dug 300 mm or more below the original surface survived. The basal levels of such features as shallow depressions, slots, trenches, and spade-marks, indicate that these categories were on the borderline of archaeological survival and that their total original distribution may not have survived.

It cannot be determined whether the rectangle of Group 2 post-holes and associated features, was a roofed building. Grey clay was predominantly associated with Building 1, and its most likely use was in constructing wattle-and-daub walls. Grey clay was also found in a large number of features in Building 2, but it fell off in concentration further away from Building 1. There are thus two possible alternatives: either the grey clay indicated wattle-and-daub walls in Building 1 alone, and its spread over a larger area was due to the processes of collapse and erosion, or it indicated wattle and daub in both structures, but less frequent use in Building 2. Whatever the correct interpretation, it is certain that any wattle-and-daub wall of timber post construction must have been part of a roofed structure, since without protection erosion would have been rapid.

Furthermore, the most obvious interpretation for a slot associated with regularly spaced post-holes, is construction using vertical posts and sill or sleeper-beams. The only difficulty with such an interpretation is the uneven base of the slot in question, which appeared to be a contiguous series of spade-marks rather than the resting place for a sill-beam. However, factors such as the soft nature of the subsoil sand may explain this. Alternatively the spade-marks may represent cuts made to receive stakes, the regular post-holes indicating a post-and-rail fence to which the stakes were secured.

In general, therefore, it is possible to conclude that the rectangle of Group 2 post-holes and other features, is either evidence for at least one roofed structure and other associated elements, or may represent fencing and impermanent structures associated with a stockyard, pig-sty, milking yard or similar structure. The foraging behaviour of pigs might easily explain some of the shallow depressions. If the structure was a roofed building, then the four north-south lines of post-holes, which appear with greater definition among the Group 2 post-holes, suggest a structure with a centrally pitched roof, 3 m wide (9 feet 10 inches), with skillions on either side also of 3 m width. This, of course, is a standard roof type of some traditional farm buildings surviving today and might suggest that Building 2 was a barn, stable or other farm building.

### The sequence of early buildings

It is assumed that because Building 1 lay beside the main street in the township and close to the site of Government House, it may have been one of the earliest of its type to have been completed, probably in 1790. The c.1792 plan of Parramatta tends to confirm this hypothesis, by indicating most huts on George Street, or at the west end of Macquarie Street.<sup>68</sup> The archaeological evidence in this case is of little assistance, since the artifacts only indicate a structure that was built between c.1790 and c.1820.

However, the location of Building 1 on the original street frontage, coupled with the historical evidence, strongly suggest that of the two structures excavated Building 1 was the first. What evidence there is in the horizontal stratigraphy would support this conclusion.

It would be very easy, but not necessarily logical, to assume that the re-cut post-holes in Building 1, Phase 2, equate with the historical evidence for the general repair of the convict huts in Parramatta between 1796 and 1800.<sup>69</sup> If the allotment had been leased from the government then the rebuild may not have been carried out by government, and need bear no relationship to the historical reference. Similarly, the weatherboarding of forty government huts in 1800–1801 need not have included this building. No conclusion to assist with this question can be drawn from the gradual increase in the frequency of nails (for weatherboards?) from Building 1, Phase 1, through Phase 2 to Building 2.

Under any circumstances the structure of Building 1, implied by both archaeological and historical evidence, is likely to have required repair after a few seasons if its collapse was to be avoided. The repairs are, therefore, very likely to have occurred in the 1790s. Of course, it is assumed that all the re-cut post-holes imply a single stage reconstruction but this need not be the case.

Building 2 was clearly erected while Building 1 was still standing. Because of the rapid decay of this type of building, Building 2 must have been constructed only a few years after Building 1. The re-cut post-holes of Building 1, Phase 2, equated in size with Building 2 post-holes, perhaps suggesting the contemporaneity of the repair of Building 1 and the construction of Building 2. This is, however, flimsy evidence.

Finally, historical evidence would suggest that neither building survived beyond 1823, since they are not shown on a map of that date, which otherwise appears to delineate all buildings accurately.<sup>70</sup> Indeed, it is quite likely that they did not survive long after 1815, since the allotment on which they stood may have been resurveyed with the delineation of O'Connell Street in that year.<sup>71</sup>

**Table 1:** Range and quantity of artifacts from Building 1, Phases 1 and 2, and Building 2.

(Quantities indicate number of fragments rather than numbers of complete articles.)

Building	1/1	1/2	2
sandstock brick	45	165	202
clay tile	—	4	8
earthenware	—	5	25
creamware	—	1	3
porcelain	—	—	12
clay pipes	—	3	1
green bottle glass	1	9	23
clear glass	—	—	5
window glass	—	12	3
nails	1	13	47
iron fragments	—	7	5
bone	—	23	48
shell (incl. oyster)	1	8	13
sandstone	—	7	2
shale	—	2	—

As stated above, the archaeological evidence cannot offer any more precise dates, but does lend support to the historical documentation. It may, therefore, be concluded that Building 1 was erected in 1790 and rebuilt by 1800. Building 2 was probably erected also by 1800. Both buildings are likely to have collapsed and decayed by between 1815 and 1823.<sup>72</sup> Historical evidence, however, suggests that occupation of the site probably continued without interruption.<sup>73</sup>

### Artifacts from Buildings 1 and 2

The contrast in the range and quantity of artifacts from Buildings 1 and 2 (Table 1), compared with that from the later occupation of the site, has already been noted. The question is whether the small number and limited range of the former is a valid reflection of reality or the result of other factors. The sample bias of the archaeological evidence must be considered before any conclusions can be drawn.

Several factors combine to reduce the number of artifacts recovered from Buildings 1 and 2: namely the decay of organic materials, the subsequent disturbance of topsoil, the near absence of pits, and the expected infrequency of artifacts in post-holes. However, if the range and frequency of early artifacts was the same as for the later ones, then one would expect this to be reflected as equal frequencies in the disturbed topsoil profile. This is not the case, so that one must deduce that for the earliest period artifacts deposited on site were less numerous and of a more limited range, than later.

The simplest explanation for the above finding is that the frequency and range of artifacts represents the access of various social or economic classes to the resources of the early colony. It is tentatively suggested that Building 1, Phase 1, represents the period of convict occupation, whereas Building 1, Phase 2, and Building 2, represent occupation by free persons. However, before discussing each phase of Building 1, the following caution must be offered. Most of the artifacts were recovered from the upper fill of post-holes, before the post-pipes were recognised. This means that artifacts may date to the decay or collapse of the structures, rather than to the date of construction. The near absence of artifacts in Phase 1 coincides with the evidence for the scarcity of possessions among convicts, and their reliance on items issued by the stores which could be recycled. For example, the mess gear issued to convicts working on Goat Island in 1834 included knives, forks, spoons, tin plates, pots and dishes.<sup>74</sup> The recycling of these articles would have rendered their appearance in the archaeological record unusual. Furthermore, institutionalised rubbish disposal, as occurred at Port Arthur, would have removed artifacts from the site without trace.<sup>75</sup>

The circumstantial evidence for the occupation by free persons of Building 1, Phase 2, and Building 2, is based on the archaeological evidence for the enlargement of facilities on the allotment and the greater number and range of artifacts. Building 2 can be interpreted either as an increase in the area available for accommodation, or alternatively as the allocation of space for agricultural or other purposes. At least there was some increase in the capital invested in the allotment. Furthermore, the presence of slots and trenches, possibly implying more substantial slab or framed construction, and the increased frequency of nails and window glass, may imply improvements in construction techniques.

In general, the artifactual evidence from Building 1, Phase 2, and Building 2, suggests that the occupants of the allotment had greater access to such articles, and may therefore have been of higher social standing than convicts. The contents of the pit or shallow depression beside the north wall of Building 2 are important to this discussion. As

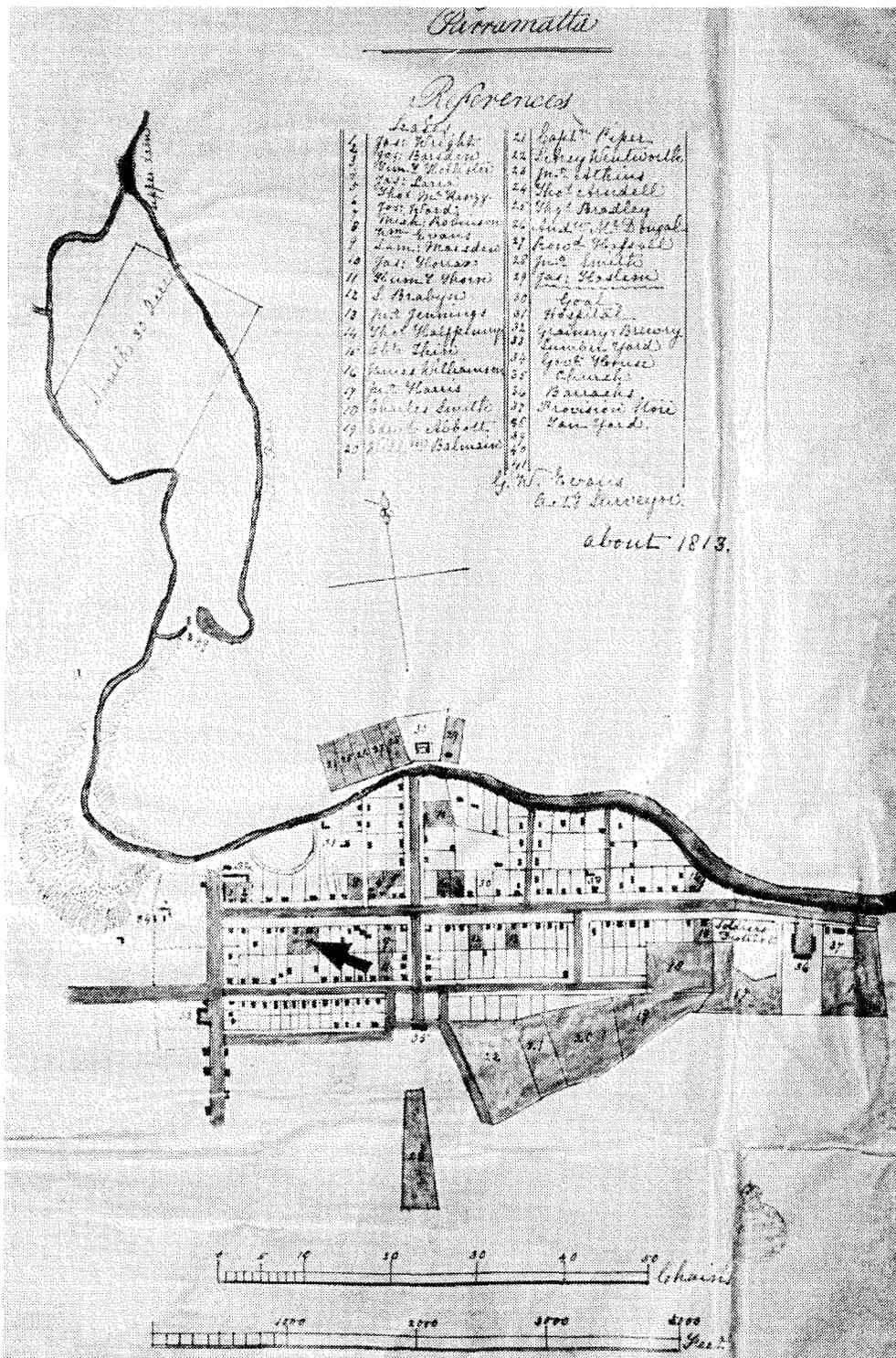


Fig. 9: Plan of the Township of Parramatta by George William Evans, c.1813. It shows the main streets, namely George, Macquarie, Church and Pitt Streets, while sketching the position of buildings. Other information on this plan includes town leases and public buildings, etc. The arrow points to the site of the excavation, an allotment leased to William Evans (No. 8). In this paper the date of this map is corrected to 1804. (Mitchell Library)

previously noted, this pit contained fragments of three articles of Chinese porcelain, a glass beaker, two earthenware cups, a tobacco pipe also of locally produced earthenware, and several other artifacts. The Chinese porcelain represents a valuable article that was traded over great distances. Its cost prohibited its disposal among the lower classes or less wealthy groups of people.<sup>76</sup> The clear glass beaker may also be a costly article. Both one porcelain bowl and the glass beaker were repaired, though not in a highly professional manner. Clearly these articles were of great value to the person or persons who possessed them, and this value may be perceived not only in terms of actual cost, but also in difficulty of replacement, or as personal heirlooms. Other items implying individual use or ownership,

include the two earthenware cups and the tobacco pipe. It should be noted that the cups were typical apprentice pieces, with tapering bodies and thick bases.<sup>77</sup> While other evidence for the presence of a pottery near the site was discredited in discussion above, these two articles might suggest otherwise. Unglazed apprentice pieces are hardly likely to have been traded very far from the point of production.

#### Historical evidence for occupation of the allotment by free persons

Research into the town leases in Parramatta prior to June 1823, was undertaken concurrently with the interpretation of the above artifactual evidence. A map of Parramatta dated

to c. 1813, indicates that the allotment containing Buildings 1 and 2 was leased to William Evans at that time (Fig. 9). The date of this map should, however, be questioned. It does not show Phillip Street which was laid out in 1811. In addition it lists all the town leases up to and including 11 August 1804, but none thereafter. It is more likely, therefore, that this map dates to 1804.<sup>78</sup> All the leases on this map were officially registered using the same surname (there are one of two changes to first names), except the one belonging to William Evans.<sup>79</sup> The only possible explanation is that Evans obtained a registered lease from another person, either by gift, inheritance, marriage or purchase. A lease to Martin Bryan, dated to 24 November 1809, records the fact that Evans' allotment on George Street was on his western side, which is an indication that Evans' title was officially recognised.<sup>80</sup>

Extensive research was undertaken to establish the identity of William Evans, and also to ascertain the person from whom he obtained the lease. With regard to the several persons in New South Wales who were named William Evans, it was possible to rule out those who were still convicts and those who had no known association with Parramatta. This left only two contenders, namely a private in the New South Wales Corps, and a former convict. However, the following historical evidence makes it almost certain that it is the latter. There were only two leases on George Street that could have been transferred to William Evans by 1804, one belonged to Richard Jones Robinson, the other to Elizabeth Dougal. An Elizabeth McDougal or McDougall had married a William Evans, and by 1814 had five children by him. It is not unusual for the *O'* or *Mc* in various surnames to be dropped in early historical records, so Elizabeth McDougal and Elizabeth Dougal could be the same person. Upon marrying, the wife's former property automatically became her husband's, thus explaining why William Evans is listed against Elizabeth Dougal's lease on the 1804 map. Finally, not only was a Mary Ann Evans the wife of Private William Evans, but all the remaining historical evidence indicates that Elizabeth McDougal had married the William Evans transported as a convict on the *Surprise* in 1790.<sup>81</sup>

Both the historical and archaeological evidence is therefore in agreement and suggests that convict accommodation was later occupied by free persons from the 1790s onwards. Furthermore, the archaeological evidence shows that only a minimum amount of capital was invested in an allotment which had no security of title. This was, of course, predicted by the historical evidence.

## CONCLUSION: CONTRIBUTION TO RESEARCH THEMES

One of the most important factors in this investigation, has been the realisation that the remains of early buildings in the township actually survive as archaeological features, in spite of subsequent urban development. This paper has demonstrated that even the remains of the humblest dwellings can make important contributions to current research themes in historical archaeology. These include such considerations as the social distinction between free individuals and convicts, the early dependence on convict and mostly unskilled labour, the scarcity of resources and materials derived from overseas, and in general the adaptation of European technology and tradition to an alien and sometimes hostile environment.

The archaeological and historical evidence combine to demonstrate that, at different times, both convicts and free persons were accommodated in the same building. Some important changes to the structure were made probably by the latter category of person, commencing a process of

organic growth to the buildings as need arose. Such a process is characteristic of vernacular British buildings, and also became a strong component of Australian settlement.

The accommodation of different social classes in a similar style of building, may have been a common occurrence in New South Wales and elsewhere in Australia until well after the 1850s. Such a phenomenon may have been caused by limited access to capital, by the pioneering nature of settlement, or by the insecurity of land title. James Atkinson, in his *Account of the state of agriculture and grazing in New South Wales*, published in 1826, recommended that the settler provide himself with a simple dwelling at first, so that his limited capital could be invested in livestock and improvement of his land. Only later, when the settler became established, did Atkinson encourage the building of a more comfortable dwelling.<sup>82</sup>

Without the further excavation of other examples of this type of building, coupled with historical research, it will not be possible to develop the themes addressed here. It is necessary to establish a pattern of development, rather than an individual instance of it. Only in this way will it be possible to define more accurately the construction techniques used, and the changing social status of the occupants of such structures. From this basic site-specific evidence, can be developed more powerful research themes, relevant first to the growth of the township of Parramatta and in general to the settlement of Australia.

Research questions raised by the excavation and not fully answered, include the local manufacture and use of earthenware pottery, and in general the development and adaptation of local manufacturing industry and technology. The excavation did not resolve with certainty the details of construction, especially of Building 2. It is likely that timber framing, wattle and daub, and brick-nog walling, were much more common than their surviving examples would suggest. Only further excavation on other sites and detailed historical research, will rectify the bias inherent in the surviving structures of this period. Finally, the excavation also raised questions concerning the nature of urbanisation in the Australian context; for example, the grand design for the township, its early emphasis as a gaol for convicts, its gradual development as a township by free citizens, and its economic role first as an agricultural settlement, and then as a centre for administration, services and the production and marketing of produce and manufactured goods.

## APPENDIX: THE HISTORICAL AND ARCHAEOLOGICAL EVIDENCE FOR THE PRODUCTION OF EARTHENWARE POTTERY IN NEW SOUTH WALES, 1790-1830

Locally produced earthenware pottery manufactured before the 1830s has not been well researched, with one notable exception, namely W. Lawson's article, entitled 'A history of industrial pottery production in New South Wales', which appeared in the *Journal of the Royal Australian Historical Society* in 1971.<sup>83</sup> Indeed, pre-1830s earthenware has been recognised on only two archaeological sites, the first being the excavation in 1985 of a small hut erected beside George Street, Parramatta, between 1790 and 1792, the other being the Gateway Site, near Circular Quay, Sydney.<sup>84</sup>

In order to assess the significance of this pottery it is necessary to answer the following questions:

1. The date range of the pottery.
2. The source or sources of production, and the techniques of manufacture.

## Historical evidence

The earliest recorded pottery production in New South Wales is dated to 1790, two years after the commencement of European settlement. It proved unsuccessful, since the most able potter soon died. One of the potters was probably Elijah Leeke, a convict who produced basins, plates, jars, pipes, etc. A soft, brittle, unglazed and unsuccessful earthenware had also been produced.<sup>85</sup>

The manufacture of bricks and tiles concentrated at an early date in the area known as the Brickfields or Brickfield Hill. Undoubtedly, pottery was produced in this area too.<sup>86</sup>

Based on the study of English pottery from this period and with reference to the historical documentation, W. Lawson was able to suggest in his article that by 1802 glazing materials (including lead compounds) were imported into New South Wales, as no glazing materials had been found here.<sup>87</sup> This is supported by the archaeological evidence which will be described below.

The first successful potter to establish himself in Sydney was Samuel Skinner, a free settler who accompanied his convicted wife, Mary, to the Colony in 1801.<sup>88</sup> On 2 and 9 October 1803 he advertised a range of wares for sale in the *Sydney Gazette*. These were as follows: flower pots, tea pots, cups and saucers, slop basins, wash-hand ditto, ewers, chamber vessels, cream jugs, mugs, water jugs, butter tubs with covers, porringers, children's tea sets complete, salts, mustard-pots, and pepper castors. He was clearly also importing glazing materials from England.<sup>89</sup>

Skinner's advertisement in the *Sydney Gazette* in October 1803, probably suggests that he had taken all the time since his arrival in 1801 to establish himself and to perfect his kiln or kilns. Skinner had probably developed a reputation for good work by 1803, as it seems that only the best potters advertised their products. There were no advertisements placed by the other potters who are known to have existed.<sup>90</sup>

On 5 August 1804 the following advertisement appeared in the *Sydney Gazette*:

### APPRENTICES

WANTED FOUR APPRENTICES to the POTTERING BUSINESS, in the various Branches of which they will be instructed either for Five or Seven years.

For Particulars apply to Samuel SKINNER, Pitts Row, who begs leave to acquaint the Public that he has recently made considerable additions to his Manufactory, and such as will, he hopes, tend as materially to its improvement as enlargement, and to secure top approbation which is so much his desire to be thought deserving.<sup>91</sup>

Lawson assumes that Skinner's pottery was at Brickfield Hill, on Pitts Row or Pitt Street. However, it is more likely that it was beside the Tank Stream on Pitt Street and thus near Sydney Cove.<sup>92</sup> The lease is illustrated as Number 31 on James Meehan's *Plan of the Town of Sydney in New South Wales*, dated 1807.

Because Skinner's lease is so far from his probable source of clay at Brickfield Hill, there is some doubt as to whether the pottery was actually located on the lease or on Crown land at Brickfield Hill, as was the case with the brickmakers. The fact that his lease, taken out on 18 December 1805, records him as already in occupation does not assist in the resolution of this difficulty.<sup>93</sup> However, the fact that Skinner was prepared to invest heavily in his business, as implied by taking on apprentices and enlarging his pottery, suggests that he might have desired some guarantee of land tenure, and thus have placed his pottery on the lease in Pitts Row.

Samuel Skinner's final advertisement before his death in 1807, appeared in the *Sydney Gazette* on 21 September 1807, in suitably flourishing terms:

SAMUEL SKINNER, of Pitt's Row, begs leave to acquaint his numerous Friends and the Public in general, that he has just finished burning off a large and capital assortment of Earthenware, which for variety, durability and appearance, he flatters himself cannot be excelled, while his pieces will, he trusts, in addition to the quality, maintain a preference which he has thus to acknowledge.<sup>94</sup>

In his description of Samuel Skinner, Lawson suggests that he advertised more than once for apprentices, and that he was unsuccessful in obtaining them.<sup>95</sup> Current research has only been able to locate one advertisement for apprentices, as quoted above, and has found no evidence to indicate whether or not any apprentices were taken on.

It is noted by Lawson, that Lord and Hutchison made an unsuccessful attempt to manufacture pottery in 1813, and Lawson mentions another pottery on Cockle Bay, or in other words the south end of Darling Harbour, near George Street.<sup>96</sup> In fact, J. Johnson, the proprietor of the pottery at Cockle Bay, advertised in the *Sydney Gazette* on 31 July 1813, calling in all claims and debts.<sup>97</sup>

Lawson discusses the bias of J. T. Bigge's report on the state of the Colony, published in 1823. Bigge claimed that the lack of glazing materials rendered the pottery industry of little economic importance.<sup>98</sup> To rectify this bias, Lawson quotes P. M. Cunningham's assessment of the pottery industry:

All kinds of common pottery ware, such as milk dishes; large butter and cream jars with covers; large tubs for salting meat in; common brown Toby Philpot jugs; wine and water coolers, and spruce-beer bottles, are made in the colony in sufficient abundance to supply all our wants, and sold at a tolerably cheap rate. The glazing is chiefly performed by litharge or salt — there being no flints to grind and make the finer glazes of.<sup>99</sup>

It is clear from this statement that both lead-glazed and salt-glazed wares were being produced by the 1820s.

The only other potter for which there is any reasonable amount of documentation in the 1810s to 1820s, is Jonathan Leak. Excluded from this analysis is William Cluer, who was a successful tobacco-pipe manufacturer at Brickfield Hill from 1804 to the early 1820s.<sup>100</sup> Furthermore, the Moreton Brothers, Anson, Harry, and Ralph, operated a pottery at Brickfield Hill from 1821 to 1834 but this has not been researched.<sup>101</sup>

Jonathan Leak, born c.1778, became a potter by trade but was convicted at the Staffordshire Assizes in 1819 and sentenced to transportation for life. He arrived in New South Wales on the ship *Recovery*.<sup>102</sup> He was employed by Government to make earthenware of varying descriptions for about eighteen months, after which he was allowed through good conduct to set up on his own behalf. In September 1822 he obtained a Ticket of Leave.<sup>103</sup> Mary Leak, his wife, and five children, appear to have obtained free passage to the Colony to be with him.<sup>104</sup> Leak was recorded as the only person:

who made the improvements in this Colony in Stoneware to contain Pickles etc and was employed by several highly respectable Gentlemen in the Colony to cast the likeness of several heads of malefactors who have suffered the sentence of the Law.<sup>105</sup>

From this evidence, one could conclude that Jonathan Leak was the first to introduce the manufacture of salt-glazed stoneware bottles into New South Wales. From an article in the *Sydney Gazette*, on 18 October 1826, he is known to have cast the head of Martin, the bushranger.<sup>106</sup>

In 1828 Leak applied for a conditional pardon, which he received in 1831.<sup>107</sup> Also in 1828 he claimed to be employing twenty free persons, and to be manufacturing bricks and pipes.<sup>108</sup> However, in the 1828 Census he is recorded as employing only seven persons, including six labourers on Tickets of Leave, or free by servitude, and one pipemaker, who was a government servant.<sup>109</sup>

Leak's pottery was situated near the Brickfields, on an allotment to the east of Elizabeth Street and south of Goulburn Street, in the vicinity of Wentworth Avenue. His pottery continued in production until at least 1840.<sup>110</sup>

In the 1830s pottery manufacture became well established both in Sydney and elsewhere, for example by James King, of Irrawang, at Raymond Terrace from 1834 onwards.<sup>111</sup>

### Archaeological evidence

At present, unglazed and lead-glazed earthenware has been found on only two archaeological sites: George Street, Parramatta, and the Gateway Site, Sydney. The former was found to date from 1790 to c.1815–1823. The number of undatable sherds found in topsoil may, however, allow for the extension of the date range.

At the Gateway Site the distribution of two artifact types was compared, namely clay roofing tiles, made in a sanded stock (sandstock), and earthenware pottery, either plain or lead-glazed. Both artifact types were found in contexts ranging from naturally deposited sands to layers associated with the demolition of a stone store and brick building. In other words, they appeared in contexts dating from 1788 to the 1860s.

Historical documentation for the production of roofing tiles, suggests a date range for this artifact type from 1788 to the 1790s, after which it was replaced by more successful and more economic roofing techniques. This would suggest that the occurrence of clay tile in later contexts is residual and this may also be the case with the earthenware pottery.

The distribution of these two artifact types is also significant. Their occurrence is restricted to the shore of Sydney Cove and above the 1823 high water mark (Fig. 10) (the 1823 HWM is approximately the 0 m contour). The encroachment of land upon Sydney Cove proceeded rapidly from 1823 onwards and culminated in the 1850s with the

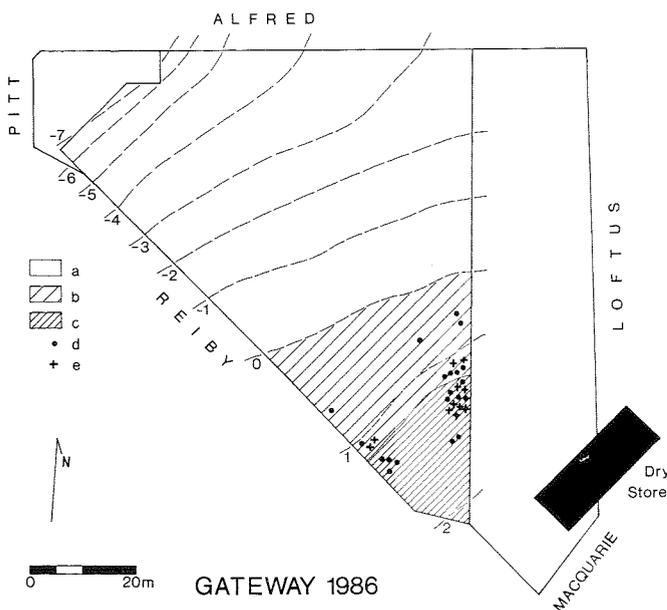


Fig. 10: Plan of the Gateway Site, Circular Quay, Sydney, showing the boundaries of basement excavation and other archaeological features. Contours of the sandstone bedrock are shown at 1 m intervals. The plan shows the extent of harbour silts, sands, and gravels (a), beach sand (b), and original topsoil (c). The distribution of two important types of artifact, namely clay roof tiles (d) and unglazed or lead-glazed earthenware pottery (e), is restricted to the area above the 1823 high water mark, as indicated by the 0 m contour. The 1788 high water mark is indicated by the extent of topsoil, approximately at the 1 m contour.

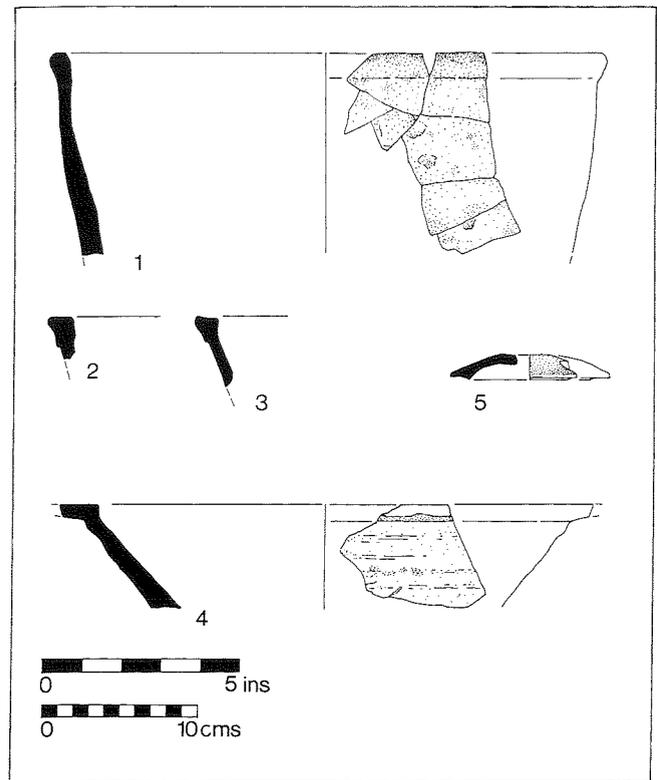


Fig. 11: The five recognizable types of unglazed and lead-glazed earthenware from the Gateway Site, Circular Quay, Sydney. Items 1 to 5 are as follows: Category 1, Type 1; 2,2; 2,3; 3,1; 4,1. Items 2 and 3 belong to vessels with an approximate rim diameter of 254 mm (10 inches) and 305 mm (12 inches) respectively. Item 1 is clearly an apprentice piece, as can be seen from the uneven body thickness.

completion of Circular Quay. The absence of these two artifact types from the area of Sydney Cove encroached upon after 1823 is unlikely to be due to sample bias alone, but probably reflects an early production date for both types.

All the recognizable types from each category of earthenware from the Gateway Site are illustrated in Figure 11, except for a very small sherd provisionally identified as a plate or dish. The ware categories are as follows:

1. Poorly mixed white to very pale brown ware, unglazed.
2. Light grey to very pale brown ware, internal lead glaze, external slip.
3. Reddish brown ware, internal lead glaze, external slip.
4. Miscellaneous wares.<sup>112</sup>

Although the general nature of the pottery and the types produced are similar to those from Parramatta, the ware categories are not identical. This may be interpreted in several ways:

1. Different sources of clay within the Sydney-Parramatta region (that is assuming the ware is not imported).
2. Different potters or potteries.

While one may accept the first interpretation as a contributing factor, the second one requires some elaboration. That different potters or potteries are involved is suggested by the slight variations in style, for example in the shaping of rims. The lack of similarity in rim types from Sydney and Parramatta might easily result from the preference or training of different potters. Historical documentation indicates that different potteries were in production and such variation in style should therefore be expected.

The recovery of a similar range of earthenware categories at the Gateway Site and Parramatta, further discredits the hypothesis that the earthenware from Parramatta was excavated only a short distance from a production site or pottery. Indeed there is at present no historical evidence indicating pottery manufacture at Parramatta. The alternative hypothesis that the range represents the marketing of wares from a number of potteries is supported. The predominance of unglazed earthenware from Parramatta may, in fact, indicate a very early date of production, since it is known that glazing materials had to be imported.

As a conclusion to the above questions, the earthenware pottery from both the Gateway Site and from Parramatta suggests that a range of clay sources may have been used, that a number of potters and potteries were in production, and that production techniques ranged from crude to skilful. The archaeological evidence demonstrates that lead glazes were the first available to any extent in New South Wales.

The final question to receive consideration, is whether or not the earthenware found at both the Gateway Site and at Parramatta was locally produced or imported. There is no doubt that some earthenware could have been imported in times of necessity, but there are many arguments for local production. For example, the earthenware was fragile, difficult to pack safely, and would appear to have been of low value. Its costly shipment to Australia is therefore unlikely. This, of course, would not be the case with more valuable articles, such as Chinese export ware and porcelain. Similarly, the variable and often low quality wares that have been excavated, suggest the use of unskilled people or apprentices in the production process. Such articles strongly support local production, as they are extremely unlikely to have been imported. Furthermore, unglazed or poorly glazed wares fit in well with the early conditions as indicated by historical documentation. While a small proportion of the lead-glazed earthenware so far excavated may have been imported, it is strongly suggested that the majority of sherds represent early and experimental stages in local pottery production.

## ACKNOWLEDGEMENTS

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## SITE RECORDS

Negotiations to have the artifacts and site records from both the Gateway Site and from Parramatta accepted by the Museum of Applied Arts and Sciences, Sydney, are in progress. At present the Parramatta material is located at the Australian Archives, while that from the Gateway Site is held by Gateway Plaza Pty Ltd.

## NOTES

1. Collins 1975: 33.
2. *ibid.*: 37.
3. *ibid.*: 54. The decision to send the *Sirius* to the Cape of Good Hope, and to settle at Rose Hill are juxtaposed in Collins as well as in *HRA*. This evidence suggests that the decisions were related.
4. Collins 1975: 60.
5. *ibid.*: 72.
6. *ibid.*: 137.
7. The site belongs to the Commonwealth of Australia. The southern part of the site is leased to Leighton Contractors, their clients being the Department of Local Government and Administrative Services. The remaining northern part of the site is being developed directly by the Department of Housing and Construction. Upon completion of the development, the site will contain the Commonwealth Government Office Block, and Law Courts.
8. Preliminary historical documentation included the Plan of the Town of Parramatta, c.1792; A view of the Governor's House at Rose Hill, in the Township of Parramatta, 1793, drawn by Fernando Brambila; Plan of the Township of Parramatta, c.1813, drawn by G. W. Evans, Assistant Surveyor; Plan of the Township of Parramatta, 1823, drawn by G.C. Stewart.
9. Tench 1979: 195.
10. *ibid.*: 195-6.
11. Kerr 1984: 6-7.
12. Plan of the Town of Parramatta, c.1792.
13. Tench 1979: 57.
14. Paul Johnson, Senior Lecturer, School of Architecture, University of New South Wales, 1986, pers. comm.
15. *HRA*, Vol. 1: 198.
16. Collins 1975: 173.
17. *HRA*, Vol. 1: 198.
18. Tench 1979: 246.
19. *HRA*, Vol. 2: 560.
20. *HRA*, Vol. 3: 438.
21. Tench 1979: 247.
22. Proudfoot 1971: 14. Proudfoot quotes a translation of Don Luis Nee. Note that the original is in Spanish, and it has been translated from thence into German, then French, then English. The exact meaning of some phrases may have been lost in translation.
23. Barrington 1795: 55.
24. Tench 1979: 259.
25. Suttor n.d.
26. Jervis 1961: 30.
27. *ibid.*; Proudfoot 1971: 27.
28. Jervis 1961: 25-6; LTO, Book 2B, Number 80, 17/9/1796.
29. Jervis 1961: 25-6.
30. S.G. 11/5/1811.
31. LTO, Books 2, 2B, 3, 3C, 4D: *passim*.
32. LTO, Book 3, Number 105.
33. LTO, Book 2, Numbers 6-7.
34. Jervis 1961: 26.
35. S.G. 3/5/1823.
36. LTO, Books 1 (26), 15, 16, 17, 18: *passim*.
37. For a more detailed evaluation of the archaeological potential of the site, see Higginbotham 1985b: 25-7.
38. See Note 8.
39. Higginbotham 1985b: 35.
40. *ibid.*: 30-3; Paul Johnson, Senior Lecturer, School of Architecture, University of New South Wales, pers. comm.
41. Higginbotham 1985b: 34-5.
42. Higginbotham 1986a: Appendix 1.
43. *ibid.*: 6-7.
44. The reconstructed depth of topsoil was discussed with Roy Lawrie, Department of Agriculture, N.S.W., and it was agreed

- that its original depth would have varied between 200 and 300 mm.
45. Higginbotham 1985b: 29–30.
  46. *ibid.*
  47. For full description of soil types, see Higginbotham 1986a: Appendix 1.
  48. *ibid.*: 28–9.
  49. The categories are described in full in Higginbotham 1986a: 12–22.
  50. *ibid.*: 20.
  51. The total distribution of spade-marks may be recovered by inspection of the detailed photo-mosaic records of the site, consisting of black and white photographs of every square metre.
  52. Only in a few cases, could the artifacts from post-holes be identified with certainty as having been deposited in either post-packing or post-pipe. In most instances, the artifacts were recovered from the post-holes prior to the recognition of the post-pipe at a greater depth. Even considering the lengthy processes whereby posts decay, the artifacts do not reveal any recognisable contamination from later layers. It has therefore been concluded that the artifacts represent those deposited during or shortly after the occupation of the buildings.
  53. George Gibbons, then of the N.S.W. Institute of Technology, now Department of Mineral Resources, N.S.W., 1985, pers. comm.
  54. Richard Mackay, National Trust of Australia, N.S.W., pers. comm.
  55. Mulvaney 1985: 8.
  56. Collins 1975: 277.
  57. Allen n.d.
  58. Higginbotham 1986a: 37–41.
  59. I would like to thank Judy Birmingham, University of Sydney, who first brought this possibility to my notice.
  60. W. Lawson, University of New South Wales, 1986, pers. comm.
  61. Lawson 1971: 18.
  62. Deetz 1977: 48.
  63. I am indebted to Mr Hepburn Myrtle, who kindly undertook to inspect the porcelain. Also Higginbotham 1986a: 43–4.
  64. Higginbotham 1986a.
  65. Collins 1975: 102.
  66. In a letter from Caley to Banks, a description is given of houses in Windsor, similar to those erected in Parramatta (*HRNSW*, Vol. 5: 294). 'The walls are wattled and plastered with clay, the roof thatched, the floor frequently nothing more than the bare ground. They generally consist of two rooms'.
  67. Collins 1975: 102.
  68. Plan of the Town of Parramatta, c.1792.
  69. *HRA*, Vol. 2: 560.
  70. Plan of the Township of Parramatta, 1823, drawn by G.C. Stewart.
  71. Paul Johnson, Senior Lecturer, School of Architecture, University of New South Wales, 1986, pers. comm.
  72. None of the post-holes revealed evidence that could be recognised as purposeful destruction or demolition of either structure. Higginbotham 1986a: 30, Note 8.
  73. Plan of the Township of Parramatta, 1823, drawn by G.C. Stewart.
  74. Kerr 1985: 6.
  75. Martin Davies, 1985, pers. comm. Rubbish from Port Arthur was disposed of at sea.
  76. Hepburn Myrtle, 1986, pers. comm.
  77. W. Lawson, University of New South Wales, 1986, pers. comm.
  78. Jervis 1961: 37; LTO, Book 3C, Number 160, lease to James Wright 11/8/1804. The next town lease to George Caley is dated 1/1/1806, LTO, Book 3C, Number 187.
  79. LTO, Books 2, 2B, 3, 3C, 4D: *passim*.
  80. LTO, Book 4D, Number 255, Martin Bryan, 24/11/1809.
  81. Higginbotham 1986a: 62–5; LTO, Book 3C, Numbers 43 and 44, respectively Richard Jones Robinson and Elizabeth Dougal, 26/3/1800. Evidence for changes to surnames was provided by Dr. Carol Liston, historian.
  82. Atkinson 1975: 95.
  83. Lawson 1971: 17–39.
  84. Higginbotham 1986b.
  85. Lawson 1971: 18.
  86. *ibid.*
  87. *ibid.*: 19.
  88. *ibid.*
  89. *S.G.* 2 & 9/10/1803.
  90. Lawson 1971: 19.
  91. *S.G.* 5/8/1804.
  92. LTO, Book 3C, Number 185.
  93. *ibid.*
  94. *S.G.* 21/9/1807.
  95. Lawson 1971: 19–20.
  96. *ibid.*: 20–1.
  97. *S.G.* 31/7/1813.
  98. *ibid.*: 21.
  99. Cunningham, 1827, Vol. 2: 115.
  100. *S.G.* 23/12/1804, 21/4/1821.
  101. Birmingham 1983: 80.
  102. Colonial Secretary, Indents of convict ships, 26/6/1819–18/12/1819.
  103. Leak, Memorial Number 12, 24/4/1828.
  104. *ibid.*; Colonial Secretary, Memorial, 1822.
  105. Leak, Memorial Number 12, 24/4/1828.
  106. *S.G.* 18/10/1826.
  107. *ibid.*; Darling, Despatch 1831.
  108. Leak, Memorial Number 12, 24/4/1828.
  109. Sainty & Johnson 1980: L434–L450, A229, C123, M240, M2346, M2521, W161, W162.
  110. Lawson 1971: 23.
  111. *ibid.*
  112. Higginbotham 1986b: 32–4.

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