

GOVERNMENT BUSINESS ENTERPRISES – A CLOSER LOOK

This paper is about the early forms of business enterprises operating in the colony of NSW by the government of that colony between 1800 and 1830. Government involvement was necessary and essential on three fronts. Firstly, the selection of items for production was aligned with the public works program. Secondly, convicts, with or without appropriate skills were assigned to government and needed to be put to productive work. Finally, the smallness of the local market and the lack of capital in the fledgling economy made the government the sole provider of development capital for a secondary sector within the colonial economy. Another essential element was that the items to be manufactured would have been on a long purchasing delay if imported from Britain, so the local manufacture created employment, a fast turnaround time, capital and labour. Thus began the manufacturing sector within the colonial economy of NSW. This is the story of the development and growth of a rather elementary government enterprise segment between 1800 and 1830. However, the story has three main elements. Firstly the lack of research and reference by mainstream economic historians; secondly, the unrecognised impact of government enterprise during this period on GDP and thirdly, the demonstration of economic growth during the period which has been largely neglected and misunderstood but in which the outcomes are quite dramatic.

Professor Butlin wrote in *'Contours of the Australian Economy'* that *'however unsophisticated and crude many early 'services' may have been, the complexity of the economy beyond mere food production and pastoralism shows up strongly from a very early stage and throughout. The omission of 'services' from consideration is common to most studies of economic structure and development. The variability of the service shares points to some intriguing economic questions that have not, so far, been explored to any substantial extent.'*

[*Contours of the Australian Economy: N.G. Butlin p.119, AEHR September 1986*] I think Butlin should have taken the next step and considered how to incorporate his findings into the GDP figures for the pre-1861 period, rather than leave this question unanswered.

But first a definition of Government Business Enterprises: This is my term for the enterprises or establishments operated by the government, using convict labour to manufacture materials and items in support of the public works program undertaken by various governors from Hunter to Darling, but mainly Macquarie whose instructions were to utilise arriving convicts in the workforce. My term for that activity is GBEs or-Government Business Enterprises, under which umbrella is included, the manufacturing workshops (the lumber yard and the timber yard), and the materials centres (the brick and tile facilities the stone quarries and the timber camps) which together used large numbers of coerced labour to produce much needed materials for local use and thus replace imports for this purpose. Imports would have identified a huge spending pattern contrary to directions from the Colonial secretary's office in London whereas convict maintenance merely reflected the number of government supported convict workers, supported by the government store.

The outside work gangs (the land clearing gang, the construction gang, the road-making gang and the maintenance gang), were another form of government labour and then we had the public farming side with government farms located in 22 areas within the Cumberland County and Bathurst region.

Butlin's term is Government Establishments, by which he means destinations to which convicts were assigned to government service.

These enterprises had many similarities to modern GBEs such as the old T.A.A, Qantas and Telstra (when they were in government hands), and the even older AGL Co and AWA (when they were essential industries). However the main criteria of the original GBEs were government capital, government forced labour, and the government was the only market for the GBEs, unless there was a small surplus which could be sold thru the Commissariat or be sold by auction to the general public.

My interest in this topic commenced when I read the challenge issued by Butlin in *Forming the Colonial Economy*, in which he stated ‘It is *unfortunate that no history of the commissariat system in Australia has been written*’. I accepted that challenge and prepared a masters’ thesis on the commissariat in response. The GBEs are a natural extension of the role and operation of the commissariat.

You may be wondering why GBEs are such an exciting a concept.

In brief, this is because between 1800 and 1825, they employed over 8,000 convicts and taught nearly all of them a trade, which was very useful for when they were emancipated.

William Lithgow the first Colonial Auditor-General from 1824, assessed the net value of their labour at 10d per day, and that was deduced from his calculations of the cost of maintaining and clothing a convict for a year (being £15.4.2). Using this figure and opening the convict records for 1820, the value of the gov assigned labour was over £300,000, and the value of their output was over £900,000. You might be asking why this is so important. The main importance is that Butlin and Sinclair made a quite well recognised assessment of GDP between 1788 and 1861, but although Butlin recognised the value of government farming he deliberately did NOT recognise the value of production for the government enterprises. Although I can’t find his exact reasoning I surmise his omission is based on the fact that British Treasury instructions gave ‘nil’ value to either convict labour or convict output. The *Blue Books* noted that the ‘net colonial income’ for the year 1828, as actually collected, was exclusive of *sums in aid of revenue* which could not be viewed in the character of income. This item is further defined in the *Blue Books* as ‘the proceeds of the labour of convicts, and establishments connected with them, being applied to the reduction of the amount of parliamentary grants for their maintenance’. In subsequent reports, the item ‘receipts in aid of revenue’ appeared in the ‘*Blue Books*’, and included revenues such as - ‘sale of Crown livestock; sale of government farms produce; sale of clothing and cloth made at the Female Factory at Parramatta; sale of wheat, sugar, molasses and tobacco produced by the convicts at new settlements such as Port Macquarie’. We can include it now and examine the significant addition to GDP it makes.

I now intend to argue three theories.

My **first** contention is that the Butlin/Sinclair GDP estimates as set down in AEHR Sept 1988 are incomplete because they did not include any allowance for the value of production value of GBEs.

My **second** contention is that almost the complete output of the GBEs was directed to supporting the infrastructure and public works program, especially during the Macquarie years and I estimate that the value of the public works additions during the 1814-1820 period of the Macquarie Administration was over £2 million. I have ‘costed’ each of the 76 buildings and projects completed during this period and can substantiate this estimate.

I am going to go out on a limb here, but can again substantiate my figures and my **third** claim is that the British Appropriations to the colony between 1800 and 1840 were exceeded by the collections of duties and import taxes made by Britain on colonial exports – the exports of coal, timber, skins oil and wool were all subject to a tax by way of import duty, and the value of those collections exceeded the Treasury appropriations to the colony.

Now you may be wondering what does British revenue to the colony and tax collections have to do with GBEs?

The answer lies in two circumstances

Firstly the early balance of payment was one directional i.e. Imports and transfers to the commissariat were not offset by any worthwhile volume of exports. The amount of timber or coal was rather minor in comparison to the imports of supplies and financial support. This imbalance regularly exercised the mind of Governors Phillip, Hunter and King, and they could find no staple exports until whaling and sealing came along in the first decade of the 19th century.

Secondly the GBEs were activated, promoted and expanded as an import replacement tool and many millions of pounds of local production replaced the direct importation of building materials, convict supplies, and foodstuffs

Let me turn to the convict worker usage for a moment. In 1820 over 5,000 direct workers (all convicts) were employed in the GBEs and an analysis of their tasks, assignment, and production is to be found in the notes attached to this paper. In 1802 less than 20 were employed in the predecessor to the lumber yard called the convict workshop and this number rose only slowly to 75 in 1812. This was because there was a great deal of pressure to assign the convicts to private masters and when the demand for both private and government assignment was set down, there was really only sufficient convicts on hand to handle the private sector requests, so the government sector waited for convicts until Macquarie revamped the assignment process not long before the large influx of new convict arrivals commenced in 1815. So in 32 years, from the commencement of the settlement the number of government assignment and direct labouring convicts rose to over 5,000. That is not a bad effort for a fledgling colony, but a remarkable economic effort which needs recognition and most certainly requires incorporation into the GDP figures of the period.

The GBEs introduced an Aussie form of capitalism and entrepreneurship. This is to be seen in the recruitment, operation and success of early entrepreneurs. The introduction of any real capital was overshadowed by immigrant settlers bringing belongings and net worth to the colony with them. Often these settlers speculated by investing in items considered a requirement in the colony with the opportunity of selling that item at a substantial profit, but items in kind contributed most of the capital before 1835.

How can we assess the value of convict production and what are the sources to verify the labouring team numbers? I have used two methodologies. The first was to compute the actual production from early records and assign a 'price' or value to that item. The second method was to use the task rates assessed for each work section and measure output in this way. The pricing used was exactly the same. By a remarkable coincidence, the results are within 5% of each other.

A General Overview

Organisation of Government Business Enterprises.

Geoffrey Scott in *Sydney Highways of History* writes

Under the guise of controlling the activities and rehabilitation of convicts, Macquarie decided that, rather than placing all convicts on assignment and thereby removing any financial obligation for their maintenance, a percentage should be put to work on behalf of the government. This would be accomplished in two ways. Firstly, direct convict labour, rather than the preferred contractor program, would be used for infrastructure development and other public works programs, specifically government building. This resulted in a great concentration of convicts in Sydney employed in two big workshops, the Lumber Yard and the Timber Yard, both located on George Street, together with the stone yard (across from the Lumber-Yard) and the three-storey Commissariat store, wharf and dockyard, fronting the western side of Sydney Cove. The convicts worked on a task or piece system. In the Lumber Yard, surrounded by an 8 foot high brick wall for security purposes, forges were used for making nails, hinges, wheel irons and other metal products. Other sections were set aside around the outside walls of the factory for boot-making, cabinet and furniture-making, barrel making, and the making of coarse wool and cotton for slops and hats. In the centre of the large factory the two saw pits were manned by up to 25 men who cut the timber taken from the kiln after the drying process. In the timber yards, beams and floor-boards were sawn and prepared from the timber drawn from the Lumber Yard. The brick and tile yard was built around a huge kiln (22 ft long by 18 ft high) producing 24,000 bricks at one raking. The

stone-yard not only produced large building blocks from stone but also flagstones, hearthstones and mantelpieces. Within the Lumber-Yard were stored all the tools required for the various business enterprises and for each work site. Each item was recorded going out and coming in while all materials – both raw material and finished product – were recorded equally carefully at the clerk's office located at the main gate. The Superintendent of Convicts, Major Ovens, had set a piecework productivity rate; for instance, the shoemaker's gang of about eight men was supposed to produce a pair of shoes per man per day from leather tanned at the government factory at Cawdor; the brass-foundry and the tailors' gang each had their own production goals. The carpenter's gang usually consisted of 50 men, made up of cabinet-makers, turners and shinglers; the bricklayers' gang, generally between five and ten men, were expected to lay 4,500 bricks each week; the sawyer's gang was usually 25 men. Other gangs based in the Lumber Yard were also sent out to garden, cut grass, dig foundations and carry grain. The Lumber Yard was responsible for over 2,000 men in all. The government business enterprises were comprehensive and massive undertakings, and Macquarie took pride in their output and accomplishments.

Manufacturing is only part of the story in any study of economic development of the period. Economic development drove public finance in the same way that the growth in population, farming, decentralisation and land utilisation impacted on the source and use of public funds. As Professor Blayney records in *The Tyranny of Distance* [p.152]. *'While Australia could attract few working men it could attract men of capital because it offered them two advantages over North America. It offered them free land until the late 1820s and it offered them convict labourers. So long as Australia granted free land to migrants who arrived with capital it had some attraction to the wealthier strata of British society*

Other factors to be considered are that the Commissariat established multiple stores and supplied foodstuffs and materials (at government expense) for convicts as well as civilian and military personnel, and the Commissariat also established work centres for convicts: A summary of their output is quite extensive for a small and young Colony

Table 1.1 is a partial list of items produced by the Commissariat using convict labour, mostly from the 25 or so government enterprise locations around the Sydney and Parramatta areas (the County of Cumberland). However, some products such as tobacco were produced at penal settlements at Port Macquarie and later Moreton Bay, whilst items such as tea and sugar were imported under licence from the East India Company. Until 1820, these centres employed about 50 percent of the convict population. Their output was directed to agricultural products, livestock supply, import replacement manufactures, materials required for the construction and building industries, materials required in the public works and infrastructure construction program, and the transport and storage requirements of the government.

It would seem logical that before an enterprise program was commenced or expanded that some evidence of official permission would be taken, followed by a strategy of creating a public works program and its associated needs for architects, designers, builders, skilled labourers, supervisors and their underlying needs, in addition to labour and materials. It would seem that all this approval process was incorporated into the Governor's instruction wherein the governors were encouraged to put prisoners to productive work but at little or no expense to the Treasury. For most public works, the actual cash outlay was negligible with the main cost being the cost of maintaining the convict workers. Macquarie maintained he had to impose a toll on these works as a means of both deferring original cost and providing for ongoing maintenance. This was a false public policy claim as the toll revenue was included in general revenue and none was set aside for future maintenance or replacement work. The tolls were, in fact, just another government tax. Then as now!

What a huge plan; what a gigantic undertaking; production planning, market planning and a comprehensive business plan of the finest sort. That role would be a mammoth undertaking for an advanced economy, but for a small settlement of relatively few permanent free settlers, an unwilling military, and the challenge could easily seem overwhelming. The needs were not extravagant – a building design, plenty of labour, suitable raw materials, some limited equipment and off the project could go. Of course, a small number of basic government sponsored operations were already underway.

In fact by 1804, the brick and tile yard, the stone quarries, the dockyard and the government farms were all underway. The convict workshop had commenced work and this operation was to be later renamed the Lumber Yard. The timber-cutting operation was underway as were most of the gangs.

In fact, the government enterprises were split for management and planning purposes into three – firstly the manufacturing operations (which included raw materials conversion); secondly the agricultural operations and thirdly the labour crews. The following table further identifies these groupings.

Table 1.2 Government Enterprises by Category

<u>Manufacturing</u>	<u>Agricultural Operations</u>	<u>Labour crews</u>
Lumber yard	Agricultural farms	Construction gangs
Timber yard	Vegetable	Road gangs
Brick & tile yard	Grain growing & cropping	Haulage gangs
Stone quarries	Grazing and hay making	Maintenance of parks/gardens
Dockyard	Lime making	Maintenance of roads
Naval yard	Slaughter Yards	Boat crews for ferries
Female Factory	Livestock Mntce & husbandry	Wharf labourers
	Grain milling	Clerical staff in commissariat

A brick and tile site was initially built in the *Brickfields* area of Sydney and then Phillip commenced a second site in Rosehill on the east side or southern bank of the Parramatta river; the first stone yard was commenced just off the eastern side of Observatory Hill and the main timber harvesting site had been developed east of the Lane Cove River in Castle Hills. In addition to the small secondary industries, the early government-sponsored business enterprises included the building activities of the prisoners, the government farming activities and the livestock management. So there was some precedent for planning a convict labour driven commercial operation. The first step was the planning aspect. Lieutenant G.T.W.B Boyes who was experienced in the British commissariat of Mauritius was transferred to the colony of NSW to take control of the Finance, accounts, and planning branch. Our story really gets underway in about the middle years of the Macquarie Administration when the first surge of prisoners arrived in the colony. Macquarie appointed two Principal Superintendents of Convicts – the first being Major Druitt, and the second a Major Ovens. Both men were dedicated to the task and made giant improvements in convict work practices. During the early days of the Macquarie Administration, one of the targets of Major Druitt's planning was more output from fewer labourers. With assignment under way, about 50% of the arriving prisoners were sent into the employ of 'masters', who had grazing and agricultural properties to work. Druitt commenced work with the government land clearing gangs and the government road-making gangs. This harsh work was usually left to the more unruly of the prisoners. So when the big rush of prisoners commenced arriving shortly after the Napoleonic Wars ceased in 1815, some work was available for them, but only then did the real planning for growth via economic development and public works commenced.

Whilst the commissariat was planning to upgrade and expand the government business enterprises, Macquarie himself was planning for the extensive public works program. One needed the other. Macquarie's public works program badly needed the GBEs for cost reasons as well as the practical supply side, whilst the commissariat needed to plan its production around specific guidelines and objectives. Thus the GBEs commenced in 1802 (long before Macquarie's arrival) with the forerunner of the Lumber Yard (called the convict workshop), followed by a variety of subsidiary or associated operations – the Timber Yard, the Stone Yard, an expanded Brick and Tile Yard, and a Dock Yard. The Lumber Yard's site was selected in a prominent location on the corner of High (George) Street and Bridge Street. Most raw materials used were despatched to or from the main commissariat store on George Street North, in a three storey brick building fronting George Street. Logs were floated down the Lane Cove and the Parramatta Rivers and then on to the main commissariat wharf before being moved to the Timber Yard and onto the Lumber Yard. Metal strips were brought on ships travelling from, England and transferred to the Lumber Yard. Convicts were initially housed in private quarters until the Hyde Park Barracks were completed at which time they were marched to the Lumber Yard and other work sites each morning at 5 AM.

With Macquarie assessing each arriving prisoner for any sign of skills, experience and productivity pending assignment to the government work facilities, and then picking only the most skilled convict workers, it is little wonder that the remainder were considered dregs and failed to meet productivity levels attributed to free workers. It is not hard to understand the lack of incentive in these privately assigned workers – they were generally ill-treated throughout the settlement, herded for counting at least once each year and often on a more frequent basis. Their provisions allowance was generally less than optimum for a workingman and they had the lowliest of tasks to complete, ones in which productivity levels were generally difficult to set and more difficult to measure. For example, Convict Superintendent Ovens allocated 8 convicts to clear one acre of trees and re-growth each week. We know from our own experience even today that every acre is different – some land is super dense, with tall, ancient hardwoods, whilst an adjoining acre may be lightly treed with the softwood already thinned out. Keeping in mind the aboriginals would run a fire periodically through much open land to regenerate the bush and grass-lands; the country-side was always at different stages of re-growth and condition, depending on drought and rains. Coghlan claims that convict works were only 60 percent as productive as a free worker, but one wonders if he has considered all aspects of the problem of such an assessment. Convicts were mostly used on piecework or task work, where goals were difficult to set. Such as building workers for construction and work-gangs for clearing land and road formation, which groups together carried out the majority of work, for which free workers were rarely sought or encouraged to carry out. Even today it is not difficult to find a council or shire work gang of 5 or more men with two or three men digging and the remainder resting on their shovels. Coghlan's generalisation is not hard to understand but closer inspection makes it an unreasoned conclusion. The answer as to productivity and commitment is probably found in the attitude of the superintendents of work. Any man is resentful of being chained like a dog and treated as inhuman, being underfed, abused both physically and mentally and having nothing to look to the future for. Due to a shortage of free workers with people skills, superintendence by a peer was the normal arrangement, and most overseers would have been willing only to stand to one side and verbally abuse the convict group or team rather than be a working-supervisor. Why should we expect a different set of standards for the convicts in 1788-1832 than we accept today? Human nature has not changed that much. Obviously there were exceptions, such as Greenway, Simeon Lord, Edward Eager and others who were self-preservationists, wanting to stand out from the crowd, embarrassed at being in such circumstances and intending to revert to their former social and economic standing.

However, such people were rare amongst the 160,000-odd convicts transferred to the colonies.

Employing Convicts

It has been demonstrated above that in 1817 over 16,000 convicts were under the overall control of the Superintendent of Convicts, Major Druitt, and of these, and about 8,000 were in government service. The balance of almost 8,000 was under the control of private masters, and supervised, and fully maintained by them. This was a huge financial burden off the government, but the British Treasury never counted the benefit derived from the convicts being put to productive work., By not recognising the colony as a production centre or a future gem of the realm, they saw no value in improving the local environment. The term 'gang' is often misused. In the context of the GBEs, it refers to a team of convicts working as a productive unit. An earlier context referred to members of a convict gang as being shackled, but this was generally not the case before Governor Darling's arrival. The term gang was generally used in connection with a group of land clearing convicts or a road construction team of convicts e.g. a road making gang. All convict workers were generally supervised or in the least overseen by a supervisor. Generally the supervisors were 'trustee' convicts, and placed in nominal charge of 'peers', a usually unhealthy and unwise approach. A convict ordering another convict generally produced negative results. Weidenhofer in *The Convict Years: Transportation and the penal system 1788-1868*(Lansdowne Press 1973) writes (p.46) 'At first they [the convicts] were fully occupied in establishing the necessities of life: constructing buildings and roads and clearing public land. All of this work was performed with a great inefficiency due to lack of proper supervision and the inexperience of the felons themselves'.

Weidenhofer writes (p.48)

Regardless, of whether a convict labourer was employed in government service or assigned to a settler, he was required to complete a specified task each day or each week. This minimum was known as his 'government task'. A week's work was set at nine hours a day for five days and five hours on Saturdays. Sunday was observed as the Sabbath. During the first twelve years of settlement, a convict who completed his government task before the end of the day or week, was permitted to use the remaining time to work for the government or for his master either for wages or goods in kind, such as rum, tea, sugar, tobacco. Settlers who wished to hire their labour on a time basis could do so for ten pence a day, six shillings a week, or £10 a year, plus free board'.

Weidenhofer also confirms the use and role of supervisor (p.50) ‘

Convict labourers working in the government service were divided into gangs in charge of an overseer, who was usually another convict appointed because of his good record. His job was to ensure the convict's attendance at his place of work each day, assign the tasks and supervise their completion. From 1819 convicts in government work were housed at Hyde Park Barracks; they were taken each day to the work site and returned in the evening'.

The GBEs in Operation

Not surprisingly, the Commissariat became the prime storekeeper of materials and supplies used within the Colony. Out of necessity, the demand for timber products, bricks, tiles, stones, rude furnishings and carts needed to be and could be manufactured locally. There was a demand for local building materials, because of the length of time it took to order and receive supplies from Britain, and the urgency of building accommodation for military and civil personnel, as well as secure storehouses and other essential infrastructure such as wharves, bridges, and housing for both settlers and convicts. Suitable local materials had been identified, including good clay deposits for brick and tile manufacturing and grain suitable for liquor production was being produced. All that was needed was labour and basic equipment. Thus in these circumstances the government business enterprises were assigned as a planning responsibility of the Commissariat and, in conjunction with the Superintendent of Convicts, Commissariat personnel planned for equipment, materials, transport and the provisioning of all government assigned convicts including those in remote camps.

However, the Commissariat was not only about being a storekeeper; it also became responsible for business services, and a means of exchange was created by the store in the form of store receipts, whilst also negotiating payroll bills and consolidating bills for remittance overseas by traders. A foreign exchange facility was also created, and it became a catalyst for a local free market for agricultural products for settlers and emancipists. Petty banking was encouraged and served an interim purpose until then Bank of NSW came along in 1817

Location of facilities

By 1811 Campbell had built a substantial store and wharf further around Sydney Cove from the Hospital Wharf and John Cadman's cottage. The main wharves were The Government Wharf on the south side of the Cove and the Governor's Wharf on the east side of the Cove, giving access respectively to the Domain and Government House. The Hospital Wharf was initially used to unload supplies for the hospital but it became the main wharf for the new three-storey Commissariat-built brick and stone store adjacent to Sydney Cove. By 1821, the Dockyard had expanded to the south of the main commissariat building and was given direct access to the King's Wharf (the renamed Hospital Wharf, originally called the Public Wharf).

The Lumber Yard occupied 3 acres on the corner of George and Bridge Streets, running down to the Tank Stream, which was marked on the 1821 map as being, 'dry at ½ ebb'. Macquarie had also completed the straightening of the town roads and the removal of encroaching houses from the road reserves. By 1821 most of the windmills had been removed as Macquarie considered them an eyesore on the landscape. In addition to the Dockyard and Lumber Yard, the Commissariat controlled a third area for stonecutters, located in the main and largest quarry on the west side of George Street North opposite the Commissariat store. This quarry, worked by a convict gang, supplied most of the sandstone blocks used in early Colonial buildings, especially those commissioned by the team of Macquarie and Greenway. This first quarry was not large enough to supply the entire requirement for sandstone and two more quarries were opened on Bennelong Point and off Farm Cove, east of the (Governor's) Domain.

I've stated previously that the main market for GBE output was the public works program. Investment in public works infrastructure was a major challenge. Britain essentially saw the settlement as little more than a tent town with the prisoners as inhabitants, under guard, transported out of sight and out of mind and who had no need of money or coins, public buildings, fancy housing or amenities. Under the early Governors from Phillip to Bligh, only the minimum amount of work was done and, therefore, expenditure had been limited, and, by the time Macquarie arrived, there was a deferred maintenance and construction schedule which dumped all of the expense and workload on his Administration. Commissioner Bigge recorded for his enquiry that 76 buildings had been completed under Macquarie. Some of these were extravagant, such as the Governor's Stables, the Rum Hospital and the toll booths on the Parramatta Road. Bigge directed that they be revamped and put to alternate, less extravagant use. He made no comment on the provision of water, sewerage or drainage measures made for a town with a fast growing population; Macquarie had drained the marshes in the present Centennial Park as the town water supply and had outlawed the use of the Tank Stream for animal grazing, washing and as a waste sewer.

The earliest convict gangs were employed on timber harvesting, timber dressing, brick and tile making and construction. Construction crews were engaged in building barracks (military as well as convict barracks) storage facilities, hospitals, paths, roads, bridges and wharves, military fortifications and observation points. Macquarie's initial dilemma was the creation

of sufficient work to keep all the newly arriving convicts employed, but this situation was quickly reversed, the demand for skilled workers grew and it could only be met from newly arriving convicts and/or specially recruited immigrants. At the same time, as newly skilled workers became available, the new manufacturing operations took shape. The construction crews, wherever located, were to be victualled and fitted out with clothing and tools by the Commissariat and this need, together with the spread of settlement, led to a diversification of Commissariat locations – Parramatta, Liverpool, Windsor, and Government Farms at Castle Hill, Pennant Hills, Toongabbie, Rose Hill, Emu Plains and Rooty Hill. The lumber yard was a catalyst for economic growth in the colony. Instead of thousands of unemployed prisoners wondering the streets of Sydney, by 1820 over 2,000 of them were behind the 8 foot exterior wall of the facility working productively. They were contributing to the GDP instead of living off the government, although in Treasury eyes they were still ‘living off the store’, because Treasury did not recognise any value for convict labour or convict output. The obligation on the enterprises was, in a year such as 1817, to service and support over 16,000 convicts. Half of them were ‘assigned’ to private service. About 1,000 were under the control of the Female Factory in Parramatta. The balance, one way or another were in government service. They may have been gardeners in the governor’s domain, or street repairers, or night watchmen, or land clearing gang members or working in one of the GBEs. There were over 11 GBEs ranging from the lumber yard to the stone yard, the timber yard, the dockyard, the shipbuilding yard, the commissariat, the government farms and the livestock management division, the lime-making (mortar) facility, the brick and tile yard, the hauling service, or the ferryboat service across the harbour and up to Parramatta. The construction gangs and the road-making gangs also employed many convicts and supervisors. So the 8,000 convicts assigned to public (or government) service are not difficult to account for.

Perhaps more important is the output from these sources. There was very little material in a government building for instance, that was not or could not be made in one of the GBEs and naturally convict labour was available for all construction work.

Output across the GBEs included: meat (and livestock), grain for flour and bread, and then the building products – bricks and tiles, stone blocks, hinges, nails, timber, hand carts, culvert piping, bridge strapping, wharf components, clothing, and furniture. In fact from the foundations up, the local production filled just about every need. Foundation stones, timber frames, timber cladding, brick exterior, window frames, roof framing, tile roof, interior wall frames and cladding, floor joists flooring boards, Furniture, nails hinges, metal vents, lime mortar. All items were made in the yards, and transported to the site. Due to the shortage of skilled or experienced workers a new innovation within the Lumber Yard was that of prefabrication, whereby, the items were assembled in the Lumber Yard, dismantled, transferred to the construction site, and re-assembled. However finished inventory generally other than for a few hard to handle items were transferred to and then despatched from the store to the construction site, with proper paperwork being completed. The lumber yard had clerical assistants at its main gate for keeping records of production and despatch, labour in use and raw materials on hand.

Directly associated with the Lumber Yard was the Timber Yard. The main function of the Lumber Yard was to debark and cut the logs (brought from the standing timber sites) into large sawn sections before transferring them to the timber yard, whose main function was to extract sawn timber of varying sizes and lengths (suitable for flooring, framing, rafters, joists, battens etc). The only reason this dual operation makes sense is that there occurred a great deal of wastage in the debarking, delimiting and sawing process and this was used within the lumber yard and military or convict barracks for burning and producing heat, and as fuel for the kilns. The logs had been floated down the Lane Cove River and across the harbour to the Commissariat landing where they were hauled from the water and stacked to enable a

controlled, natural drying process before being moved over the sawpits. The logs, having partly dried in the sun, were then rough sawn into large timber blocks with different lengths before being placed for further drying on racks under weights, designed to minimise the twisting and splitting that naturally occurred when native Colonial timbers were dried. The natural moisture content of native timbers was high and best reduced through kiln-drying, but this method was untested until the 1830s. Governor Phillip had used timber cut directly from standing logs and found to his great cost that the timbers twisted, warped and split after a short time in the sun. All his early work had to be rebuilt after allowing the sawn timber to naturally dry before being nailed into place. It took many years for the Colonial building supervisors to understand the characteristics and nature of the native timbers and how different they were to English timbers.

The main function of the Timber Yard was to cut the rough-sawn timber to preferred sizes and, after the drying process, to rack them until required for construction purposes. From early records it appears that there were never sufficient sawn timbers and demand always outstripped supply, so much so that many British ships were still bringing in timber from Britain and the continent as ballast. Also, local supplies were used in growing quantities for transfer back to and sale in Britain. Although an import tax had been imposed on timber originating from Colonial NSW, it was still in great demand for specific uses, especially for naval purposes and as hardwood. The Timber Yard was an important aspect of the enterprise operations and underpinned the supply of a substantial quantity of timber necessary to the Colonial building program which commenced during the Macquarie Administration; it was also the main timber operation in the Colony but, as the source of most timbers was in the Castle Hill and Pennant Hills area, a second but smaller timber yard was built adjoining the Pennant Hills forests. Ralph Hawkins in a study of the convict timber getters of Pennant Hills for the Hornsby Historical Society, has detailed the names and occupations of both convict and non-convict workers employed at the timber-getting establishment in the Hills area from the 1828 census (the first complete census following the last of the musters). In all there were 166 active convict workers who were employed as timber-fellers, wood and post splitters, sawyers, shingle makers, carpenters, charcoal burners, sawpit clearers and basket makers. A number of the convicts (10 in total) were working with animals as bullock drivers, stock keepers and grass cutters, whilst another sub-operation consisted of metal workers – i.e. blacksmiths and wheelwrights. As the finished products or cut timbers were moved by water, there were boatmen and wharf workers. As it was a self-contained camp, there were also hut-keepers, barbers, shoemakers and tailors. Convicts were used on the administrative side, including approx 40 men acting in a capacity as superintendents, overseers, watchmen, constables, clerks and a school teacher. The Commissariat victualled and provided supplies for all workers (a grand total of 166 convicts) and provisions would be taken by boatmen returning from the Timber Yard after delivering a supply of product from the Pennant Hills establishment.

The Female Factory of Parramatta

The Female Factory in Parramatta was used as a receiving facility for female prisoners arriving by convict transport ships and waiting processing and assignment to private masters. NO female prisoners were used in government work.

During their interregnum at the facility (the name Female Factory was the successor to the House of Corrections, a co-educational facility also in Parramatta. Their role was to spin, weave yarns for clothing, blankets. The new building was commenced in 1817 and completed by 1821 and was intended to house 300 females. Included in the amenities was a hospital room, another room for weaving cloth and four very small lodges for constables and overseers; a bake-house and kitchen, provisions and stores, storing wool, a spinning

room a carding room and a large storeroom for wool and cloth. At various times, musters recorded over 1,000 women in residence leading to overcrowding.

Government Farms

Government farms grew out of necessity. Governor Phillip had arrived in January of 1788 with only six months of food rations and was expecting to convert the supply of seed brought with the First Fleet into wheat, barley and corn supplies for extending the imported rations. Far from finding what Joseph Banks had described as ‘wonderful’ soil, Phillip found the conditions to be most difficult. First came the land clearing, and then the summer parching heat and violent rainstorms. The earliest government farms were spread around the coastal areas until 1814, and were limited in size and capability. By 1818, there were 22 locations in the County of Cumberland and the Bathurst region. Farms were developed in phases reflecting the mounting demand for additional grain and timber supplies and for grazing the growing cattle and sheep herds, as well as securing better quality soil for cultivation. Thus whilst vegetable growing found ideal alluvial soil at Emu Plains adjacent to the Nepean River; for timber the upper reaches of the Lane Cove River at Pennant Hills were the first choice (with the river being the mechanism for moving tree trunks from the producing area to the Lumber Yard for cutting and drying). The Cow Pastures, just west of the Nepean River became the preferred location for cattle grazing. Other farming locations included Castle Hills, Grose Farm, Longbottom Farm, Toongabbie and Field of Mars.

The Dockyard

The dockyards were the earliest form of staple support in the colony. Locally built boats served intra-coastal towns with supplies, rations and collection of rural produce. Then the dockyard began servicing the needs of the whaling and sealing industry. Over 70 boats of varying sizes were built annually in the Dockyard facing the western side of Semi-Circular Quay.

The Stone Quarries

The brick and tile yards were delivering over 30,000 bricks each week from their two locations in Sydney and Rose Hill. Even this level of supply didn’t meet the requirement for public buildings as specified by Greenway, so the first stone quarry was located on High Street (renamed George Street), opposite the end of Bridge Street and across from the Lumber Yard. A second quarry was developed at Pymont on Kent Street and a third was located at Bennelong point. The stone quarries made a substantial contribution to the development of Sydney town and many buildings still stand because stone was used during construction.

Summary and conclusions

I introduced the GBEs with a definition. It will bear repeating in different terms to ensure an accurate summary of the subject. My definition is that by nature and intent, the GBEs were government sponsored, government administered and financially supported; they used government labour and government raw materials (as opposed to buying in raw materials) and the vast majority of output was consumed by government programs – mainly the building and construction activities, public works and infrastructure. Thus by definition, it is safe to conclude that GBEs were a government instrumentality and practiced government policy.

I will go now to the most fundamental question. Since the vast majority of historians omit even the mentions of GBEs, the first question is, how do we know that GBEs existed in the colonial economy? Well, the omission and therefore neglect of the GBEs by mainstream

historians is not evidence of their doubtful existence, but rather a failing of these writers to comprehend the importance of government-assigned convict workers, and their productive use as coerced labour for valuable employment

The evidence of their existence can be found as follows:

1. There is plenty of evidence from Commissioner Bigge down of the assignment of convicts to government service
2. We know from official records of the existence of the Lumber Yard, the timber yard, the stone quarries, the government farms, the naval yard and convict workhouses
3. The Bigge Report informs us of the high number of convicts employed in these enterprises and of the organisation within each enterprise, the equipment, the work centres and the output achieved
4. So official records show the GBEs existed, however,
The terminology *government business enterprise* is mine, and

There is no definitive evidence that the commissariat carried out the production planning. This conjecture is mine but is a conclusion reached after extensive research, although I repeat again that I found no official document that stated that production planning for the government lumber yard was carried out by the commissariat, but we do know that Lt G.T.W.B. Boyes carried the title of commissariat deputy-general of planning. Such gaps are the onerous responsibility of a researcher into new areas of history

Thus the existence and operations of the GBEs is anecdotal rather than contained in official instructions. On the point about production planning, one should ask – who decided what to make? As pointed out above, my conjecture is integral. There is plenty of anecdotal confirmation that the main production planning work came from within the commissariat. However that is not to say that the commissariat managed any aspect of the GBEs other than the planning input, but it safe to assume that the commissariat was a strict planner of output. Majors Druitt and Ovens related in their separate reports on structural improvements to the GBEs that the commissariat had necessary involvement (with resource allocation, tools usage and storage facilities of finished product). However, it is interesting to note that the senior public servant of the day (immediately under the colonial secretary) William Lithgow, as the Colonial Auditor-General makes no independent audit of any GBE. (Refer G.W. Beckett *William Lithgow – First colonial Auditor-General – a Biography – Colonial Press 2004*). Thus the puzzle deepens, however by the best and most subjective analysis, I must conclude that the commissariat had a division within its organisation established to carry out production planning for the GBEs – its first recognised superintendent and DCG was Lt G.T.W.B. Boyes.

It would be the role of the production planners to assemble the most comprehensive knowledge of forward building, infrastructure and public works activity and prepare a bill of quantities of the components required for these projects. This information would be charted or carded for each production area from which a production plan would be prepared including allowances for additional stock (over and above specific and dedicated usage). The level of sophistication in this planning stage would not have included any estimate of manpower usage – which decision would have been left to the superintendents in conjunction with the relevant supervisors. This production planning exercise may well have been almost as important as the production itself. The important element would have been the sourcing, availability and on-time delivery of raw materials. With the official opinion of convict productivity being quite low, any unnecessary downtime due to

materials not being available would have been severely reprimanded. Ovens and Lithgow joined forces in reporting on ways to improve productivity and recommended task work, thus most sections within the lumber yard and elsewhere adopted the plan of setting of completion quotas for each section of the operation. In this way productivity was controlled and as estimated by T.A. Coghlan in 1917, a convict worker was only 60% as efficient of productive as a free worker. I find this conclusion questionable but suffer from insufficient data to provide an accurate alternative. My preferred conclusion is that productivity differentials were much less than Coghlan's 40% and were on average between 20 and 25%

The GBEs impacted on many aspects of the colonial economy, including entrepreneurship, capital inflows, the growth of the secondary sector, the development of worker skills locally, refinement of piecework and the task-work system, but mostly on the GDP between 1800 and 1835.

Table 1.1 Commissariat services and output ⁵

Food (Govt. Store)	Manufactured Items	Other
Mutton	Clothing	Brickyard & stone quarries
Beef	Slops	Quarry stone
Pork	Straw hats	Quarry gravel
Vegetables	Bonnets	Bricks & tiles
Potatoes	Shirts	Dock Yard
Cabbages	Trousers	Small boats
Cauliflower	Shoes	Unloading ships
Carrots	Boots	Loading ships
Turnips	Caps	Provisioning
Beans	Cloth	Repair work
Onions	L. Y. Building products	Financial services
Grain	Building materials	Issue store receipts
Wheat	Nails – hand forged	Consolidate store receipts into bills
Barley	Timbers – pit sawn	Issue bills
Maize	Timbers – sized & dressed	Payroll – civil & military
Oats	Furniture	Petty banking
Fruit	Tools	Other
Oranges	Iron bolts	Issue rations
Lemons	Other	Buying from visiting ships
Ancillary	Tobacco	Issue purchase orders for imports
Tea	Candles	Pay for goods purchased
Coffee	Soap	
Sugar	Hides	
Processed Flour	Livestock	

⁵ These items of foodstuffs are compiled from issues of 'The Sydney Herald' which listed vegetables grown by the Government Farms and their market prices

