The Improvement of Sydney: Infrastructure and Administration 1900-20.

Neil O'Flanagan MA (NUI)

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This thesis is my own work.

Neil O'Flanagan.
To Conal and Helen.
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Abstract.

This thesis is an examination of the changes and plans for changes in the physical structure of Sydney 1900-20. The thesis focuses upon the seminal *Royal Commission for the Improvement of the City of Sydney and its Suburbs* 1909 and culminates in the pioneering *Local Government Act* 1919. The role of recent innovations in technology, including steel, reinforced concrete, and electricity, are given much attention, and the evolution of the political administration under the weight of the changes occurring in the city and suburbs is narrated throughout. The thesis is divided into four sections. The first section deals with the construction and the planning of the public transport system, including the North Shore Bridge. The second section deals with the reconstruction of some of the older infrastructure, including the port, and water and sewerage facilities. The third section is an account of the exploitation of the new technology by the Sydney Corporation, and commercial interests and its effects upon the residential pattern of Sydney. Finally, the establishment of local government legislation is outlined leading up to the formation of the Ministry of Local Government in 1916 and its early legislation. These latter events signalled an intervention by the Government in the form of the metropolis.
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Introduction.

From the beginning of the twentieth century to the opening of the Sydney Harbour Bridge in 1932, the city of Sydney underwent a programme of reconstruction and improvement. Its port was transformed, a new terminal railway station was constructed, a city railway system was begun, and the imposing harbour bridge was completed. In addition to these works the size and shape of buildings in the city changed. The height of new buildings increased, major streets were reconstructed, and a number of slum areas were cleared.

The change in the physical structure of the city was determined to some extent, at least, by recent advances in technology. These consisted primarily of steel, electricity and reinforced concrete, each of which had a major impact upon the built environment. The Bessemer method of steel conversion made steel available as a construction material from the 1860's, while electricity was in use for street lighting in New York from 1880. Reinforced concrete, a mixture of steel or iron, and concrete, became widely used in Europe from the 1880's. Together, these materials form much of the construction work undertaken in the city in the first three decades of the century. The Sydney Harbour Bridge was built of nickel steel, the new city railway was built of steel, while the trains that ran on the new lines were powered by electricity. The electrical power stations built to generate the new form of energy were built of reinforced concrete because it was more resistant to fire than other construction materials. Reinforced concrete was also greatly used in the construction of the metropolitan water and sewerage facilities.

Sydney, of course, was not the only city to be affected by the new technology. Concrete, steel and electricity were enormously influential in changing the face of urban structures in many parts of the world, especially in the advanced capitalist economies. They were put to use assiduously in cities of the United States of America leading to high rise buildings, electric tramways, overhead city railways, and large bridges. Among the most outstanding constructions to be built of steel was the Brooklyn Bridge in New York, completed in 1883. European cities were affected by the new technology. Underground railways were constructed first in London, and then in Paris. Electric tramways were introduced to many of the large cities and concrete was put to use in many structures.
ranging from cathedrals to bridges. Perhaps the most enduring monument to steel, the Eiffel Tower, was erected in 1887-9 in Paris.

A feature of the introduction of the new technology to Sydney was its link with changes in population. During the first two decades of the century, the population of the Sydney Metropolitan Area, including the city and the suburbs, increased rapidly, from 481,830 in 1901 to 620,041 in 1911, reaching 886,728 by 1921. Along with Melbourne, which grew only a little more slowly, it became one of the larger cities of the world. A feature of this growth was that the city, in fact, declined in population during the first twenty years of the century. Its population fell from 112,921 in 1901 to 104,190 in 1921. The shift from the city to the suburbs was greatly aided by public transport, in particular, trams. Steam trams were established by the Government in the 1880's, and electric trams began to operate in 1899. Both systems supported suburbanisation, and, significantly, both systems were constructed and maintained by the Government of New South Wales. The history of the public transport system in Sydney underlines the role the Government played in shaping the form of the metropolis.

During the second half of the nineteenth century, the Government was chiefly interested in providing the means to exploit the vast territory under its control. For this purpose, it built roads, bridges, harbours, and most significantly, railways, in the virgin land. The Government had access to large sums of money available at low interest, usually from British sources, and fully confident in its future, it expended enormous amounts of money in building the infrastructure. In the new century, attention was increasingly directed at the burgeoning metropolis of Sydney. Apart from the inexorable rise in its population, Sydney was increasing its population relative to the size of New South Wales. In 1871, Sydney accounted for a little over a quarter of the population of New South Wales, but by 1901 it accounted for just over a third of the population. The proportion continued to rise and nearly half the population of New South Wales lived in Sydney by 1921, and that proportion was set to increase further.

The dynamism of the growth of Sydney compelled the Government to invest in its infrastructure. The increase in the population at least partly contributed to the investment in the construction of dams. A prolonged drought from 1901 to 1903 highlighted the deficiencies in the Sydney Water Supply, and led to government to approve the construction of a
large dam on the Cataract River, completed in 1907. The dam was built almost entirely with the Sydney Water Supply in mind and it was the first of the large modern dams, including the use of concrete and electricity, to be built in New South Wales. The dam was soon followed by the larger Burrinjuck Dam, begun in 1907 and completed in 1927, built largely for irrigation purposes. A second dam for Sydney, however, was begun on the Cordeaux River in 1918. These dams, and many others that followed, made use of "Cyclopean Masonry", a mixture of large stones and concrete, that was pioneered in the Cataract Dam.

The rise in the population, as well as the perceived congestion of the streets caused by the trams equally compelled the Government to consider seriously the construction of a city and suburban railway. The Railway Commissioners were especially keen to see a railway brought into the heart of the city, servicing the city and the suburbs. The project was fraught with controversy. The initial step in the project, the Central Railway Station, begun in 1901, and opened in 1906, provoked a heated debate. The site was opposed by the major railway engineers, and only the energy of the Secretary for Public Works, E.W. O'Sullivan forced the project to a conclusion. The design of the city railway, its route, and its capacity, was subject to numerous enquiries and public debates during the 1890's and during the first fifteen years of the century. In 1915, these debates were brought to an end when legislation for a city and suburban railway was finally passed through the New South Wales Parliament. The First World War held up expenditure on the project; although work began on the city railway in 1917, it had to be postponed the following year.

The City and Suburban Electric Railway Act 1915 was preceded by the appointment in 1912 of John Job Crew Bradfield, an engineer with the Department for Public Works, to oversee the construction of the city railway. Simultaneously, he was appointed to oversee the construction of a North Shore Bridge to connect the suburbs on the northern side of Sydney Harbour with the rest of Sydney. The amount of traffic from these suburbs to the city was increasing rapidly, and the ferries, which carried much of the traffic, caused congestion in the harbour. The Government began to look in earnest at a connection, either by tunnel or by bridge, to the North Shore in 1901. Again, the project was subject to a series of debates and enquiries culminating in a Sydney Harbour Bridge Bill 1915. The bill was not so favourably received by Parliament due to a
lack of funds caused by the Great War and the Sydney Harbour Bridge was delayed considerably. *The Sydney Harbour Bridge Bill* was not passed until 1922.

The need for an efficient transport system was heightened by the changes occurring in the physical structure of buildings in the city. Commercial enterprise in the city capitalised on the potential of electricity, steel, and reinforced concrete. Once the Sydney Corporation began to supply electricity to the city in 1904 retailers and other businesses were enabled to build larger, and often more attractive premises. Electricity removed the fire hazard associated with other forms of heating and lighting, including gas, and it encouraged an upward rise in buildings. In turn, the upward rise in buildings was made possible by the switch from the use of wood and brick to steel and concrete. From 1905 to 1912 the skyline of Sydney was transformed by these new high buildings lit by electricity. The upward tendency was held in check, however, by the *Height of Buildings Act* 1912 which imposed a maximum height of 150 feet upon new buildings. The act was drawn up amid fears that the new buildings were a fire hazard, as well as the belief that the city would soon become another Manhattan, New York, dominated by 'skyscrapers'.

The Sydney Corporation also capitalised on the changes occurring to the physical structure of the city. The new buildings enabled more people to work in the city, and they attracted more customers, and hence, revenue, adding to the value of the land under the control of the Sydney Corporation. Consequently, the Sydney Corporation embarked upon a campaign of 'improvement' from 1906 to clear the city of some of its most insanitary and poorly valued land, and to clear the way for commercial expansion. It also set about improving some of the major thoroughfares in the city to facilitate traffic in and out of the city. A particularly significant feature of the improvements was that it resulted in the dispossession of large numbers of people from their homes, perhaps the most significant cause of the decline in the population of the city from 1900-1920. In this way, the adoption of technology by commercial interests and by the Sydney Corporation contributed to the changing form of the metropolis.

In response to the changes occurring in the city, particularly of the need for a city and suburban railway system, the Government appointed the *Royal Commission for the Improvement of the City of Sydney and its*
suburbs in 1908.¹ The Government hoped that the Royal Commission would produce a plan for a public transport system in keeping with an aesthetic appreciation of the physical fabric of Sydney, especially the city. The Royal Commission consisted of politicians, architects, and engineers, and they produced a plan for a city railway that was to form the basis of the system eventually brought to fruition by J.J.C. Bradfield, although he was loath to acknowledge the fact. Later observers of the town planning movement, including Leonie Sandercock and Charles Reade, have either been puzzled by, or have harshly criticised the Royal Commission for Improvement. This has been the result of lack of awareness of the historical context in which the Royal Commission operated. Population growth, dramatic technological changes, commercial zeal, and the continued availability of British capital at low interest either competed, or combined with one another, to alter the urban fabric. The Royal Commission is best seen as a response to these factors, rather than as a determinant of any of them.

The long term proposals of the Royal Commission for the metropolis were hampered by the peculiar local government system that prevailed. Sydney, spread over a large area, encompassed over forty separate local governments, each with distinctive and quite separate jurisdictions along the British style. A reform of a physical feature over the whole of Sydney would require the approval of all these local governments. Furthermore, several different government agencies had full right to work upon the physical fabric of the city. These were generally of more recent origin, and included the Railway Commissioners and the Metropolitan Board of Water Supply and Sewerage, both of which were appointed in 1888. Also included was the Sydney Harbour Trust formed in 1901 to reconstruct Sydney Harbour, which controlled 200 miles of the Sydney Harbour shoreline. Repeated attempts were made to amalgamate all these bodies in the form of a Greater Sydney, ostensibly in line with recent legislation affecting London and New York. The Greater Sydney idea was eventually adopted by the New South Wales Labor Government which appointed a Royal Commission on Greater Sydney in 1913,² and in 1915 it brought

¹ Royal Commission for the Improvement of the City of Sydney and its Suburbs, report, together with copies of commission, minutes of proceedings, evidence, appendices and plans, NSWPP, vol 5, 1909.
² Royal Commission of Enquiry into the question of the constitution of Greater Sydney, report, together with copies of commission, minutes of proceedings, evidence and appendices, NSWPP, vol 2, 1913.
forward a Greater Sydney Bill before the Legislative Assembly. The bill failed for a number of reasons, and although other attempts to bring about a Greater Sydney followed, they were never successful. Sydney continued to be a metropolis of mainly suburban municipalities.

The municipalities were made subject, however, to new legislation emanating from the Ministry of Local Government, formed in 1916. Its first minister, John D. Fitzgerald, was among the most advocates of the Greater Sydney idea, and in his capacity as Minister for Local Government he set about the standardisation of local government in Sydney and New South Wales. This work culminated in the Local Government Act 1919 which greatly increased the powers of each municipality to 'improve' its physical structure, including the use of zoning of land for scenic, recreational, residential and industrial purposes. The powers given to the municipalities, nonetheless, were supervised by the Ministry for Local Government, and the act must be seen as a radical attempt to impose the will of the Government upon the form of Sydney. The Local Government Act 1919 was in fact the culmination of a process of wrestling the control of Sydney from various agencies created in the nineteenth century and passing it on to the New South Wales Government.

Perhaps the most dramatic example of how the Government increased its direct control over the administration and physical structure of Sydney was its fragmentation of the Department for Public Works. During the nineteenth century the DPW was richly endowed by the Government to provide the infrastructure necessary to settle and to exploit the resources of the colony. In the early twentieth century, the DPW had much of its power eroded and, and especially in the case of Sydney, infrastructure developments that would previously have been entrusted to the DPW were shared among other agencies. The process began with the formation of the Sydney Harbour Trust in 1901. Although its senior officers were engineers previously employed in the DPW, the Trust was subject only to the New South Wales Parliament. Thus the reconstruction of the State's largest and most prestigious harbour was out of the hands of the DPW.

The loss of this 'public work' was quickly followed by other losses. Railway and Tramway construction was handed over to the Railway Commissioners in 1917. The Ministry of Local Government, established in 1916, originated as a branch of the DPW in 1906. The Metropolitan Board
of Water Supply and Sewerage, formed in 1888, gradually took over the functions of the DPW in Sydney and the increasing role taken by the MBWSS culminated in legislation in 1924 to grant the MBWSS full powers to plan and construct the water supply and sewerage system for Sydney.

The fragmentation of the DPW was preceded to some extent by the increasing parliamentary and ministerial influence over the DPW in the late nineteenth century. This included the Public Works Act 1889 which established the Parliamentary Standing Committee on Public Works. The Public Works Committee consisted of three members of the upper house and four members of the lower house and they were appointed by the Government of the day to scrutinise any projects proposed by the DPW estimated to cost more than £20,000. The senior officers, who were almost entirely engineers, had their powers further eroded by the Public Service Act 1895. The Public Service Board which followed the act removed the powers of staffing and promotion from the senior officers of the DPW. The Public Service Act also had the effect of elevating the Under-Secretary of the DPW to the most influential position in the department. Hitherto, the officers in charge of the various branches were virtually autonomous, and were not subservient to one another. The Under-Secretary was chiefly responsible for chairing the Board of Reference which met every fortnight to review the work of the department and to swap information of a technical nature. With the passing of the Public Service Act 1895 the Under-Secretary was made accountable for the work of the department to the Minister, and it therefore followed that the other senior officers were made subservient to him.

Sydney, between 1900 and 1920 therefore underwent a period of massive physical change, overseen by an evolving urban administration. The physical change was to some extent preceded in the late nineteenth century, notably the consequences of the advent of the steam tram in the 1880's. The evolution of the urban administration had also began in the late nineteenth century. This included the establishment of the MBWSS, and the reform of the DPW. Notable physical and administrative changes also occurred after 1920. The Sydney Harbour Bridge was not begun until 1922, and it was not completed until 1932. The DPW continued to construct large water and sewerage works for Sydney during the nineteen twenties.
The first two decades of the twentieth century, however, saw much of the impact of the new technology upon the form of Sydney. Electricity drove the tramway system to nearly its fullest extent from 1900 to 1914 after the DPW completed the Pyrmont Powerhouse in 1899. The Central Railway Station, built with steel, concrete and electricity, from 1902-06, provided the central point for rail and tram communications not merely for Sydney, but for the whole State. Having completed the railway station, debate on the design of the city railway began in earnest. This included debate on the nature of the proposed connection to the North Shore, forming the basis for an international competition for a design of a bridge to span Sydney Harbour 1901-3, the Royal Commission for Improvement 1909, and the Royal Commission on Communication 1909. The process of public debate and enquiry culminated in the acceptance by the Public Works Committee in 1913 of a bridge which was essentially a modification of the winning entry of the earlier international competition. At the same time, the Public Works Committee accepted a design for a city and suburban railway that had its major features originally outlined in the Royal Commission for Improvement. The recommendations of the Public Works Committee paved the way for the Sydney Harbour Bridge Bill 1915, and the City and Suburban Electric Railway Act 1915. The exigencies of war led to the postponement of both schemes, but the origins of the projects in the fifteen years after the introduction of electricity is evident.

The reconstruction of Sydney Harbour, although partially begun in the 1890's, was almost entirely carried out by the Sydney Harbour Trust, formed in 1901. In the ten years after its formation, Sydney Port was transformed by the judicious use of timber and concrete in the construction of larger wharves and sheds in line with the increasing size of ships entering the harbour. The Cataract Dam, the first major dam constructed in New South Wales, was constructed for the Sydney Water Supply in the four years after it was approved in 1903. The 'improvement' of Sydney was most marked in the decade following the opening of the Municipal Electricity Supply in 1904. Commercial interests and the Sydney Corporation transformed the type of buildings erected in the city. So marked was the transformation that the Heights of Buildings

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3 Royal Commission on Communication between Sydney and North Sydney, report, together with copy of commission, appendices, evidence and plans, NSWPP, vol 5, 1909.
Act 1912 was passed in response to the public unease over the new buildings. The imposition of a maximum height remained intact until 1957.

The response of the New South Wales Government to the impact of the new technology was to devise ways to control its introduction. Hence, Local Government, and the DPW, the most powerful agencies of physical change in Sydney, were increasingly brought under the control of the Government. Local Government lost the powers of water supply to the MBWSS, the control of the port to the Sydney Harbour Trust, and it became increasingly subject to a new ministry. The DPW became fragmented and also subject to increasingly centralised control. Although Sydney received public works on a larger scale than it had received before, the Government did not concede any powers to the principal agencies of public works and although Sydney was both transformed and reconstructed, by 1920, it was more firmly than ever under the control of the New South Wales Government.

The Government began the process in the 1880's, but the task of reconstruction became more urgent than ever in the new century when the new technology and population growth demanded increasing investment in the urban infrastructure. The Government found ways to provide the investment, but not before it asserted its authority over the design of the infrastructure, and in 1919, over the very design of the metropolis. The lesson learnt by the 'improvement' of Sydney 1900-1920 was that the physical fabric of Sydney was not wholly determined by either technology, population change, or by political factors. Rather, the metropolitan design was determined by a number of factors, acting in various ways upon one another.
CHAPTER 1.

An edifice of the Steel Age: The Central Railway Station 1901-06.

Among the most visible reminders of the new technology in Sydney is the Central Railway Station. Situated on high ground overlooking the city, it was among the most imposing buildings in Sydney when it was opened in 1906. Central Station, as it became known, appears to bear out the contention that railway stations were the 'cathedrals of the new technology'.\(^1\) It was lit by electricity, and had lifts and trolleys powered by electricity. Much of the station was constructed of steel and concrete. The station was fully intended to be a monument, a testament to railways, as it was also a showcase for Sydney, designed to impress the visitor from the country or from other states.

Before Central Station was built the city was served by a less than imposing station in Redfern. Built in the 1870's it was situated at the southern edge of the city, on the southern side of Devonshire Street. It was conveniently placed to allow railway lines to run down to Darling Harbour, the main entrepot for Sydney. The city bound passenger, however, had to walk or catch a cab, a further mile and a half to reach the centre of the city.

The Railway Commissioners, therefore, consistently advocated an extension of the railway line to the centre of the city where they hoped to have a large terminal station built for them. The extension would be of undoubted advantage to the increasing number of passengers who lived in the suburbs and commuted to work in the city every day. In addition to the convenience it would bring to the city bound passenger, a large railway station in the centre of the city would enable the Railway Commissioners to locate all their employees under one roof. The Railway Commissioners complained that 'much inconvenience is now, and has been for years, experienced in consequence of its [the workforce] being distributed in various places'.\(^2\)

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2 *State Rail Authority of New South Wales Archives*, Mss R54/2, p.4.
For the purpose of building the central station, the Railway Commissioners favoured placing the station in Hyde Park, one of the most picturesque areas of the city. Although there appeared to be a generally positive view taken of the need for a railway extension, opinion was divided on the location of the station. The Hyde Park scheme counted amongst its supporters those who respected the judgement of the Railway Commissioners. The *Bulletin* considered it sensible to have 'a big, useful, respectable station in its business centre, as other places have'. The *Sydney Morning Herald* believed the desire to hold on to Hyde Park in its entirety to be based on mere 'sentiment'. The *Freeman's Journal*, however, objected to the scheme. It lamented the loss of the park to those who lived in the area, who were for the most part, among the poorest inhabitants of the city. It believed that nothing 'could compensate the poor people whose overcrowded residences in the city render the park invaluable to them.' Although the *Daily Telegraph* was not so resolutely opposed to the scheme itself, it observed that public opinion would be a formidable opponent:

Is there anybody who would dare put a railway station on Hyde Park, London; Central Park, New York; or Golden Gate Park, San Francisco? Public sentiment would reject the proposal, as we believe it will here.

A scheme for the extension of the railway into the city and for a railway to the Eastern Suburbs was nearly made law in 1879. The Government led by Henry Parkes was prepared to provide money for the extension but the scheme was narrowly defeated in Parliament. The scheme were defeated on the grounds that trams could be made to provide the same service as a city railway and at a much lower cost. Consequently, in 1880 the Government embarked upon a public tramway system for Sydney and brought tramways to much of the Eastern Suburbs. The need for an Eastern Suburbs Railway System was therefore

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4 *Sydney Morning Herald*, 12 Oct 1899.
5 *Freeman's Journal*, 23 May.
6 *Daily Telegraph*, 1 June 1896.
Public Works Committee, Report No. 2, on Electric Tramway from Belmore Park to Fort Macquarie, NSWPP, 1900.
pre-empted by the trams, and the question of a railway to these suburbs was dropped for the time being.

The question of a new terminal station, however, was not allowed to remain unanswered for long. Public debate on the issue intensified after the appointment of E.M.G. Eddy as Chief Commissioner for Railways in 1888. Shortly after his appointment, Eddy drew up plans for the extension of the railway into the city. Redfern Station was becoming increasingly overloaded and dangerous to passengers and staff alike. Eddy repeatedly warned the Government that unless a new and more spacious station was opened, the Railway Commissioners could not be held responsible for any fatal accidents that might occur in Redfern.

As a result of the pressure brought to bear upon the Government, a *Royal Commission on City and Suburban Railways* was appointed in 1890 to consider the need for a new station and for a railway to the Eastern Suburbs. The Royal Commission initially reported in favour of the Hyde Park site, albeit on the casting vote of the chairman. The scheme they recommended involved taking up to a quarter of Hyde Park for the new central station. They also suggested that an extension could be continued as far as Circular Quay. They envisaged that four lines would be drawn by viaduct over the land fronting Redfern Station down to Goulburn Street, under Liverpool Street, under Hyde Park to emerge at the King Street end. The cost was estimated at £1,835,000 of which £1 million would be accounted for by land resumptions.

The recommendation however, was, overturned by the Royal Commission shortly after issuing this progress report. In the light of the objections to the Hyde Park site, the commission invited Eddy to forward a new proposal in July 1891. Eddy emphasised that he still favoured the Hyde Park site, but in the event of this not being approved he was willing to submit the alternative scheme. This consisted of a large terminal station for long distance traffic on the Benevolent Asylum site on the northern side of Devonshire Street. Four lines would be continued as far as King Street, and two of these would continue down as far as a terminus at Circular Quay. The other two lines would be brought out to the Eastern Suburbs. The four lines would leave Devonshire Street on the eastern side of the terminal station, by viaduct over Belmore Park,
Elizabeth Street and Goulburn Street, and hence by a combination of open cuts and tunnels through the rest of the city.\(^8\)

The desire of the Railway Commissioners to build the terminal station in Hyde Park, however, had to be considered in the light of a possible connection with the North Shore of Sydney across the harbour. By 1893 the final section of the North Shore railway was completed, from St Leonards to Milson’s Point.\(^9\) All that remained to be done to connect the lines on either side of the harbour was to construct a bridge somewhere in the region of Dawes Point and Milson’s or MacMahon’s Point on the North Shore. It had long been observed that the high ridge along Dawes Point would provide the perfect side for a bridge across the harbour.\(^10\) Consequently, should the city railway be extended into the city, it would seem wise to connect it with Dawes Point. The Hyde Park site, however, was on the eastern side of the city, and a railway line from the site would only lead to Circular Quay, or Fort Macquarie, neither of which were suitable for a bridge across the harbour. In order to extend the railway to Dawes Point it would be necessary to extend it to the west of the city, possibly along Kent Street.

The perseverance of the Railway Commissioners in pressing for the Hyde Park site was apparently due to Eddy’s belief that a North Shore Bridge should not be built. Eddy believed that the population of the North Shore was not large enough to justify the expenditure of either a bridge or tunnel to the North Shore.\(^11\) All his plans therefore ignored the possibility of a need for a connection to the North Shore. It was probably due to his view on the matter that the Royal Commissioners reported that it was as yet ‘inexpedient’ to connect the North Shore. They made an important acknowledgement, nevertheless, that should this connection take place, the ideal method was by a high level bridge.

The growing tram network and the question of the North Shore Connection again forced the Government to drop consideration of the


\(^10\) *Royal Commission on City and Suburban Railways, progress report on the extension of the railway into the city and the north shore bridge connection*, NSWPP, 1891, pp 58-61.

central station and the city railways. Consequently, increasingly impatient with the lethargy of the Government, the Railway Commissioners called attention to the dangerous state of Redfern station in 1896 and demanded an 'immediate settlement in the interests of the safety as well as the comfort of the traveling public'. Mindful of the public unease at the apportioning of Hyde Park they suggested moving the main station to the block bordered by Elizabeth, Park and Liverpool Streets. This way there would be less interference with the park. The new scheme involved an underground station with thirteen railway lines, and four double platforms. The buildings of the terminal station would face on to Park Street and the overall cost was estimated by the railway commissioners to be £600,000.

In order to examine the new proposals the Government appointed the 1897 Royal Commission on the City Railway Extension. The ensuing enquiry revealed the full extent of the hazards of running Redfern Station. Of the thirteen platforms in the station, two were too short to be used on a general basis, and another two platforms were too short to accommodate the seven car train normally used on a working day for the suburbs. Only nine platforms were therefore available regularly to cope with the traffic which on an ordinary day amounted to as much as 560 trains, many of them bound for Darling Harbour. During the busiest hour of the day 45 trains came into the station. Furthermore, the traffic increased during holidays. It was estimated that during one holiday, the number of trains entering the station reached 701, and 52 trains were counted during the busiest hour. In addition, the shunting and removal of engines and carriages added to the congestion. A consequence of the frenetic flow of traffic through the station was that there was a very high turnover of officers in charge of the signal station, with few of them lasting more than two or three weeks because of the 'immense suspense and difficulty of working the points'.

The Royal Commissioners examined the Devonshire Street scheme, but they did not recommend its adoption. There was little economic advantage to the construction of a Devonshire Street site as the costs would have to be borne almost entirely by the state revenue. The Devonshire Street scheme, which was in many respects an enlargement of Redfern Station, was not of sufficient advantage to the passengers to

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13 Haynes (Wellington), NSWPD, 7 Dec 1899, p.3090.
warrant an increase in fares to help offset the costs. Passengers would still be left short of the city where many of them worked. The Royal Commission therefore accepted the proposals of the Railway Commissioners and recommended the construction of a central railway station over Hyde Park at the Park Street junction. A line running through to Hyde Park was in fact the cheapest possible method of running a railway into the city, as Hyde Park was owned by the Government and it could therefore be resumed at a much lower cost than land owned by private concerns.14

The Railway Commissioners envisaged taking ten acres from Hyde Park for the purpose of building a station catering for both suburban and country traffic. Park Street would be raised to the level of the incoming trains. Furthermore, if it was intended to carry lines down to Circular Quay, it would be possible to lower two lines on the eastern side of the station and run them through a tunnel under Macquarie Street. Branch lines could be carried around to the Eastern Suburbs in a similar manner. On the question of permanently encroaching upon a public park, the commissioners pointed out that although Hyde Park would be reduced in size from forty to thirty acres, there was still an abundance of public parks in the area. The Outer Domain contained an area of ninety acres, the Botanic Gardens sixty acres and the grounds surrounding Government House measured forty acres. The Railway Commissioners also suggested converting the area between the present railway station beside Devonshire Street and Belmore Park to a public park. This included an old cemetery and the Benevolent Asylum, both of which had seen better days. Up to twenty acres of park land would then be made available in an area that badly needed improvement. Nearby lay the congested area of Wexford Street, acknowledged as one of the most insanitary spots in the city.

The recommendations to carry out the construction of Hyde Park station were nearly unanimous. Only two of the thirteen commissioners dissented from the main report. This was in spite of a particularly striking moment during the enquiry when Henry Deane, the Engineer-in-Chief for Railway Construction in the DPW gave evidence on the 19 February 1897. One of the commissioners, James Hoskins, questioned Deane on the feasibility of building a small station at the King Street-Elizabeth Street area as part of an extension into the city. Deane replied

14 Royal Commission on City Railway Extension, op cit, p.15.
'this extension in any case will involve the construction of a new station on the Benevolent Asylum grounds.' Somewhat taken aback, Hoskins continued:

Hoskins: In addition?

Deane: Yes; you could not get over that; Redfern must be improved.

H: Do I understand that any city extension will necessitate the resumption of the Benevolent Asylum grounds, and that you must have a station there under any circumstances?

D: Yes, unless you bring the terminus on to Hyde Park but otherwise you must do something at the Benevolent Asylum grounds.

H: Is the commission to understand that if you extend the railway to the city, say to King street, or anywhere else, the Benevolent Asylum site, and, perhaps, the cemetery grounds, must be resumed to have a large station there, because the existing station at Redfern is too small?

D: Yes, you are bound to have an improvement at the present terminus station, either by shifting it across Devonshire street, or by making a new one in Hyde Park.

This was a considerable concession on the part of Henry Deane. The natural response of a government intent on minimising expense would be to follow the advice of the 1891 Royal Commission and build the Central Railway Station on the Benevolent Asylum. All the administrative facilities could be accommodated on the site as easily as the proposed site in Hyde Park. Since the construction of Hyde Park would also necessitate the costly resumption of the Benevolent Asylum grounds, there was a clear case of 'killing two birds with the one stone' by building a central station on the grounds of the Benevolent Asylum. Although it would have to be paid for out of state revenue, the Government would at least be spared the cost of providing for the resumption of both the Benevolent Asylum site and the Hyde Park site. The construction of a central railway station in the Benevolent Asylum grounds would also placate the demand of the Railway Commissioners for a central station, as well as relieving Redfern Station of its congestion. The distance between the station and the city centre would obviously be made up by trams.

There is no doubt that Hyde Park terminal station had been ruled out by the Government by 1898. When the Premier, George Reid appointed F. Rennick, Engineer-in-Chief of the Victorian Railways to examine the problem of establishing a new terminal station, he reminded Rennick

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that the Government was resolutely opposed to the Hyde Park scheme. The Government, Reid told Rennick:

...will not deprive the people of the use of Hyde Park as a park, and as covered with a series of important city thoroughfares, and sacrifice the actual to that extent to the "ideal" with which, I can assure you, I am already most fully acquainted. The "railway ideal", when it comes into contact with a "health ideal", must, I think, take second place, if at any rate, any other scheme is possible, and within reasonable bounds of expense.\textsuperscript{17}

In any case, Rennick's report appeared to undermine the suitability of Hyde Park. His assessment of the 'railway ideal', as Reid had described it, was not entirely favourable. He estimated that it would have a life span of thirty to forty years, hardly the time scale the Government had in mind. The platform space it would provide would still amount to just half that to be provided in the main stations in Melbourne, Flinders Street and Spencer Street.

Nevertheless, after the death of Eddy in June 1897, his successor, Charles Oliver, continued to press for a Hyde Park site. When Oliver met the new Premier, William Lyne, on 28 Aug 1899, soon after the release of Rennick's report, he was steadfast in his support of the scheme. Although he discussed three options with the Premier, he reminded Lyne that the Hyde Park scheme, 'meets all reasonable requirements of a city railway at the present time. It provides for all passengers being brought direct to the business portion of the city'.\textsuperscript{18} Although the scheme would cost £250,000 more than the Devonshire Street scheme, interest charges could at least be paid off through the increase in fares. Significantly, Oliver stressed that a railway to the Eastern Suburbs could be best provided with the Hyde Park plan. 'This is not unimportant,' he went on, 'as the day is not far distant when the tram system will be wholly inadequate to meet the requirements of the eastern suburbs'. Furthermore, he attempted to convince Lyne that should a North Shore Connection be constructed, by tunnel or by bridge from Dawes Point to McMahon's Point, a railway connection would still be perfectly feasible.\textsuperscript{19}

Another scheme discussed was that of a line branching off at a halfway point between Eveleigh Station and Redfern Station to go towards

\textsuperscript{17} Extension of the Railway System from Redfern to the Circular Quay, (report of the engineer-in-chief for the Victorian Railways), \textit{Journal of the Legislative Council of New South Wales}, 1st Session, 1899, vol lix, p.5.
\textsuperscript{18}SRANSWA, Mss, R54/2, Report 4 Oct 1899.
\textsuperscript{19}Ibid.
Darling Harbour. Eveleigh Station was situated about a mile behind Redfern Station but it was on high ground and it was thought that the dip from the present line down to the harbour was too steep for the trains. Another drawback of the scheme was that suburban trains would often avoid Redfern Station completely. This would leave passengers from the country trains alighting at Redfern without direct access to suburban trains and vice-versa.\(^{20}\) The problem of connecting city and country services was also highlighted in a compromise scheme the Railway Commissioners had been asked to consider in the middle of 1899 involving a station at Hunter Street. The basic proposal appears to have been to deal with the country trains in Redfern, as always, but to bring the suburban trains to a terminus at Hunter Street. The Railway Commissioners rejected this out of hand since many suburban commuters traveled into the city on country trains and under this scheme they would still be left short of the destination in the city.\(^{21}\)

The third proposal discussed by Lyne and Oliver was the Devonshire Street site. Oliver admitted that 'a most perfect terminal station can be constructed on this site at a cost of nearly half a million of money'.\(^{22}\) On the other hand, he pointed out that the development of the site would not constitute a railway extension into the city, and the cost of the station could not be handed on to the passenger, thus 'leaving the interest on the capital cost for all time a charge to be borne by the general taxpayer'.\(^{23}\) There was also the 'question of how the passengers from the suburbs were to be carried to the business areas of the city. It was certain that the business bound traffic from the suburbs would grow. Oliver therefore warned Lyne that any new terminus must be located in the business portion of the city.

Edward William O'Sullivan and the Benevolent Asylum Site 1899-1900.

The new government which came into office in October 1899 was equally determined not to build on Hyde Park. The new Secretary for Public Works, Edward W. O'Sullivan, however, differed somewhat from

\(^{20}\) Ibid.
\(^{21}\) Ibid, Mss R54/2, p.1.
\(^{22}\) Ibid.
\(^{23}\) Ibid.
his predecessors in being equally determined to construct the railway station. He moved on the 7 December 1899 in the Legislative Assembly that the Devonshire Street site be examined by the Public Works Committee. He told the Legislative Assembly that the Government:

At all events propose to start, as the basis of the city railway, by enlarging the present railway station at Redfern in such a manner as to take it across Devonshire street, and as far down as what is known as Belmore or Garden road. It will include the Benevolent Asylum, the Christ Church Refectory, the Good Samaritan Convent, the present day tramsheds, and also the Devonshire street cemetery. It will take in the whole of that block facing Pitt street and go along Belmore or Garden road, up to Elizabeth street, including also the police barracks.24

Where previous Secretaries may have dallied over the construction of the station, this was not the case with O'Sullivan. The construction of the Central Railway Station formed part of his programme to make full use of the resources of the DPW during his term of office, which lasted from 1899 to June 1904. He believed that his ministry was the highest 'to which one could aspire in the state except one'.25 He expanded the day labour system, and increased the wages of the workmen, much to the chagrin of some of the officers of the department.26 Roadmaking and the laying of railway track were greatly increased during O'Sullivan's tenure. New roads measured 1,500 miles in 1899 but increased to 2,000 miles the following year, while the length of new railway track rose from 245 to 560 miles over the same period.27 O'Sullivan was in fact the dynamic force behind the Lyne Government and his energy and zeal brought to concrete form the Central Railway Station.

The eventual design of the station was sketched in by him, as a monument 'of one who had some thought for the beautification of the city'.28 The design, according to the Bulletin, reflected his personality. The building, it said, 'will combine all the salient features of the

24 NSWPD, 7 Dec 1899, p.3063.
25 SMH, 10 April 1901, quoted in Bruce Mansfield, Australian Democrat, the career of Edward William O'Sullivan, 1846-1910, SUP, 1965, p.156.
26 Mansfield, Australian Democrat. This included Col. Veron, the Government Architect, who objected to the industrial policies pursued by O'Sullivan: 'Workmen employed have, upon occasion when representing their case to the Minister, had invariably the greatest consideration paid to them, so much so as to appreciably increase the cost of construction, but greatly to the advantage of the men themselves'. p.158.
28 Ibid, p.156.
Colosseum, St Pauls, the Kremlin and a Yankee skyscraper in one magnificent, impressive and O'Sullivanesque whole'. The details of the scheme had been drawn up by Henry Deane. The station was to have eleven platforms, each of these 600 feet in length. The whole station was to be covered with a roof 640 feet long and 395 feet wide. The station buildings were to face Garden Road, three stories in height, to accommodate all the staff under the Railway Commissioners. Devonshire Street would be closed, but a new street would be opened from the Devonshire Street/Castlereagh Street intersection to Garden Road.

According to the Railway Commissioners the cost of construction was £421,000, the annual cost of maintaining the station was put at £14,000, and the value of the land itself was estimated at £98,000. The Daily Telegraph commented favourably that 'the position and the area of that site render it capable of being made perhaps the best central railway station in the world'.

The Railway Commissioners, however, pressed for a change of course. They reminded O'Sullivan that:

The Devonshire street scheme will be a convenience, so far as the railway working is concerned, but commercially it would be of no advantage, nor would it meet the convenience of the public. We would therefore urge the reconsideration of the matter, with a view to a scheme being suggested which would more likely be financially a success, and a greater benefit to the travelling public.

O'Sullivan was quick to respond. The Government, he asserted, was committed to the city extension as a whole. The Devonshire Street scheme was only the first stage of the process and the Railway Commissioners were wrong to assume that the extension would not be forthcoming. Furthermore, he asserted the unalterable position that existed between the Government, and Oliver and his colleagues:

We are quite willing to listen to the commissioners' advice, and, where possible, to adopt it; but I am one of those who, like many others in the Parliament, always fought against the assumption that the commissioners

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29 Ibid, p.159.
30 NSWPD, 7 Dec 1899, p.3065.
31 SRANSWA, Mss R54/2, p.4.
32 Quoted in Gunn, Along Parallel Lines, Daily Telegraph 25 Oct 1900, p.238,
33 NSWPD, 7 Dec 1899, p.3065.
34 Ibid, p.3066.
The Daily Telegraph, 6 Jan 1902.
are to dictate the railway policy of the country. The Railway Commissioners
are mere administrators; they are mere servants of the Government of this
country, and that fact should never be lost sight of.35

He also dismissed the very basis of the Hyde Park scheme:

It is absurd to think that we can bring all the trains loaded with wool,
wheat, bark, timber or minerals, into the heart of the city to be unloaded
and treated in the way in which they are treated at the central terminal
station. The thing is altogether beyond the bounds of reason.36

In any case O'Sullivan steered his railway monument through the
confusing and confused opposition in the Legislative Assembly. The
primary source of division arose from the opposing interests of the 'country' members, and the 'city' members. In order to placate the city
members, O'Sullivan emphasised that the Central Railway Station would
be followed by a railway extension into the city. Nonetheless, Joseph
Carruthers, MLA for St George, who supported the extension, suggested,
with a certain validity, that it was unfair to expect people to vote on the
central station separate from the railway extension.37

The Central Railway Station was, after all, originally conceived as a step towards a
city railway. The Attorney General, B.R. Wise, who represented the
suburb of Ashfield, which stood much to gain from a city extension,
however, assured the house that if the proposal for the central station
was carried a similar motion for an extension would be presented before
the end of the session. The extension, he believed, would run down
Elizabeth Street, under the Domain to emerge at Woolloomooloo Bay.38

Evidently, not every one was convinced that an extension would be
forthcoming so readily. This was particularly the case with the members
representing country districts who were determined to resist any
extension. They recognised that Redfern was in need of upgrading but
they disapproved of a railway running into a city already well endowed
with facilities. Aware of the feelings on the matter, the decision by the
Government to split the Devonshire Street scheme from the city
extension proposals, and sponsor them by separate motions, at least

35 Ibid.
36 Ibid.
37 Ibid, p.3075.
38 Ibid, p.3078.
ensured an easier passage for the central station through the Legislative Assembly. The type of attitude the Government had in mind was well displayed by the member for Deniliquin, J.M. Chanter, who stated:

In the interests of the safety of the travelling public, I shall vote for the present proposal, but I shall hold myself free to oppose any extension such as has been suggested.\(^{39}\)

As far as Chanter was concerned the only people who were interested in running the line down to Hyde Park were 'some gentlemen, who are splendidly served in the suburbs, and who really want a railway to their office doors'.\(^{40}\)

There were other members who believed that by building the station at Devonshire Street the city extension would be postponed for some considerable time. The new station was close enough for people to walk or catch a tram into the city and not far enough away to necessitate an extension. Members holding this view included Joseph Carruthers. He declared the proposal to be:

...the death knell of the city railway, for I feel convinced that once the railway is extended this half-mile further to the city, taking up the large area for a central station, you will never get a city railway for the convenience of the ordinary passenger traffic, unless the electric tram system is brought into operation.\(^{41}\)

It was precisely the impact of the trams that J.A. Hogue, the member for Glebe, believed to be essential to the debate. Trams, he asserted, would do away with the need for any further intrusions into the city by the railway:

In future tramways will serve purposes that we scarcely anticipate even at the present time, and if we have a great central railway station just on this side of Redfern it will serve the purpose sufficiently, and we shall look to the tramway to provide what is necessary for the purpose of carrying people into and out of the city.\(^{42}\)

In any case the motion referring the Devonshire Street scheme was passed without division. Many of those who gave it tacit approval did so

in the belief that this would put an end to the extension, while others felt secure that this was only the beginning of it. Active opponents of the Devonshire Street scheme were few since they ran the risk of being held responsible for a fatal accident in Redfern. It all added up to a shrewd use of political resources on the part of O'Sullivan.

The motion referring the railway extension to the Public Works Committee was brought before the house on the 20 December 1899. The motion concerned a line running across Campbell Street and Goulburn Street, along the east side of Elizabeth Street, along the fringe of Hyde Park down as far as a new city station lying between King and Park Street. The motion was passed easily enough in spite of the stringent opposition of some country members. The latter included R.D. Meagher, who represented the Tweed. Meagher pointed out that the scheme being put forward by O'Sullivan was in fact running into a dead end at Woolloomooloo Bay. There was apparently no intention to link up the line with a connection to the North Shore which would more than likely be in the vicinity of Dawes Point. R.D. Meagher reminded the Assembly of the alternative scheme that Mr Norman Selfe, a civil engineer employed in a shipbuilding firm, had presented to the 1891 Royal Commission on City and Suburban Railways. Selfe had proposed running a line to the west of George Street, down to Victoria Markets, then on to a station at Wynyard Square, which could then be brought on to be carried over by bridge to the North Shore. Compared to the scheme proposed by the Government, Selfe's scheme had the advantage of being considerably cheaper. The disadvantage of Selfe's scheme was that it was almost all in the open, making it unsightly, noisy and, with the steam emanating from the engines, highly inconvenient for the by-stander. Nonetheless, Meagher's criticism raised the question of the place of its scheme in the overall development of the city.

The Central Railway Station scheme survived the scrutiny of the Public Works Committee and the bill for the scheme was presented to Parliament in December 1900. It passed through Parliament easily. Work began on the 29 February 1901 with the clearance of the Devonshire Street cemetery. The graves were exhumed and the remains were

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43 See Royal Commission on City and Suburban railways, progress report, op cit, reference scheme O.
44 NSWPD, 20 Dec 1899, p.3675.
THE SITE OF THE NEW RAILWAY STATION, SHOWING THE AREA RESUMED.
transferred to the new cemetery at La Perouse in the suburbs. The Benevolent Asylum, the 'Female Refuge of the Good Samaritan', and the police barracks were demolished. A number of buildings on the corner of Pitt Street, including a Presbyterian church and school, were demolished to make way for a partially widened Pitt Street. By the time O'Sullivan laid the foundation stone at the corner of Pitt Street and Belmore Road on the 30 April 1902, he planned to widen Belmore Road to carry a tramline to Redfern on the eastern side of the station. He also conferred with Samuel Hordern, who owned much of the property in Gipps Street, to see if the latter could be widened. O'Sullivan also intended to clear the Wexford Street area, and build a road through it to Oxford Street. Thus, the railway station would be connected with the main thoroughfare to the Eastern Suburbs while the city would be rid of some of its more notorious slums.

As already mentioned, the building had many of its main features sketched in by O'Sullivan. In October 1901, however, he appointed a Board to consider the 'question of requirements and design'. The Board consisted of H.C. Stanley, Chief Engineer, Queensland; C.W. Norman, Chief Engineer, Existing Lines, Melbourne; W.L. Vernon, Government Architect for New South Wales; T.R. Firth, Chief Engineer, Existing Lines, Sydney, and Henry Deane, the Chief Engineer for Railway Construction in New South Wales. After examining the design, itself a collaboration between Deane, Vernon and O'Sullivan, it was decided to accept it with certain modifications. The Board suggested that accommodation for the public could be increased, and it recommended improvements in some of the interior features of the building. It also suggested resuming additional areas around the site 'so that eventually the surroundings of the station could be brought into accord with the imposing character of the design of the buildings'.

The north front of the station was to be fully one hundred and sixty five feet wide. On either side of the station George Street and Pitt Street were to be widened to one hundred feet. In addition, inclined approaches

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46 Eric Irvin, Sydney as it might have been: Dreams that died on the drawing board, Alpha Books, Sydney, 1974, p.143.
were designed to bring trams up to the platform level of the station, and down again on the other side. To top off the design it was proposed to build a clock tower two hundred and fifty feet high visible from most parts of the city. The railway station was opened for use in August 1906, having cost over half a million pounds to build. The project consumed much of the resources of the Railway Construction Branch of the DPW which was forced to suspend the bulk of its spending on the laying of railway track for a period of three years.\textsuperscript{48} What the people of New South Wales received in return was a highly commodious and imposing station that had been 'architecturally designed so as to be an object of admiration to visitors'.\textsuperscript{49} It defiantly overlooked the city below it, 'with its wide approaches, beautiful park in front, and plantation of trees, on the Pitt-street side - the most beautiful railway station in the world', according to Edward O'Sullivan.\textsuperscript{50}

**Trams, electricity, and the City Railway Extension.**

The number of people using the railways in Sydney increased dramatically after 1900. The number of suburban passengers carried by the trains increased from 22 million in 1900, to 34 million in 1907 and soared to 72 million by 1914.\textsuperscript{51} Four new platforms were added to the station in 1914, while an additional double track had to be constructed for the traffic from the newly opened suburban stations of Illawarra and Bankstown.\textsuperscript{52}

Many of these passengers were bound for the city centre, but they had to make do with the trams or walk. O'Sullivan had not pursued the railway extension with the same zeal and energy which had characterised his campaign for the Central Railway Station, and the extension was held in abeyance. He was perhaps guided by the report of the Public Works Committee in 1900 which suggested that it was not yet opportune to build an extension of the railways into the city. It had

\textsuperscript{48} Coltheart and Maddrell, \textit{op cit}, p. 33.
\textsuperscript{49} Ibid, p.62.
\textsuperscript{50} O'Sullivan, 'The Improvement of Sydney', in E.J. Brady, \textit{The Commercial Capital of the Commonwealth, Sydney} 1904 p.52.
\textsuperscript{51} James Fraser, 'The Railway System, Past, Present, and Projected, of the City of Sydney and its Suburbs', \textit{Transactions of the Institution of Engineers, Australia}, vol vii, 1926, p. 204.
\textsuperscript{52} James Fraser, \textit{The Development of the New South Wales Railway System}, Railway Printing Office, Sydney, 1919, p.10.
discovered that as things stood, there was little justification for such an expense as a city railway. Of the 25,000 people which arrived in Redfern from the suburbs every day, fully 9,350 walked to their destination. Only a little over 14,000 people used the trams, and of these 13,000 used the electric trams that ran down George Street. The Public Works Committee also rejected the claims that the change from the trains to the trams caused lengthy delays for passengers bound for the city. It reported that the delay in catching a tram from Redfern was only a matter of one to three minutes at a maximum.

The Government were certainly coy about the construction of a railway extension. The question of the direction the extension should take, either east or west, had not been resolved, and the trams appeared to be fulfilling the function of a city transit system. An attempt to revive the issue, however, was made by Joseph Carruthers, M.L.A. for St George, who moved a motion on the 20 August 1901 to refer a city railway proposal to the Public Works Committee as an 'urgent public requirement'. The motion was shortlived and it was eventually withdrawn, largely because of the opposition of 'country' members.

It nonetheless presented Carruthers with an opportunity to lay bare some of the issues behind the decision to build the Central Railway Station. He reminded the house that although much public money was spent on the station, it was only being moved a mere quarter of a mile further into the city. Therefore the Railway Commissioners:

...cannot charge a penny piece more to the railway travellers for being taken to the Devonshire street central station. Therefore, for that 561,000 pounds expenditure- except the rent of a bakers shop and a few refreshment shops it is proposed to rent there will not be one penny piece return to the railway revenue.54

Rather spitefully, Carruthers then turned on the country members, who, he believed, were unduly prejudiced against Sydney:

Every little town and hamlet in New South Wales can gets its railway, but the great metropolis is to go begging year after year for a railway.55

53 Public Works Committee, on Extension of Railway into the City, op cit, p.12.
54 NSWPD, 20 Aug 1901, p.628.
55 Ibid, p.630.
Such an approach was bound to draw fire from the country members, some of whom appeared to delight in their strength in Parliament.

Now we have a country party in the house, which will show its power and vote down the city railway, and we shall not hear about it for twenty years to come, which will be quite time enough...56

Others however sought to cool down the friction between city and country and emphasise their common interests. F.E. Winchcombe, MLA for Ashfield, pointed out that the extension of the railways into the city and across the harbour 'would add to the value of lines all over the country'.57

The most difficult obstacle to the railway extension, however, was the tramways. By 1901 an electric tramway, built at a cost of a quarter of a million pounds was running up and down George Street. In addition an electric tramway designed to run down Castlereagh Street and return via Pitt Street was being constructed at a cost of £186,000.58 Together with the older steam tram in Elizabeth Street, the four main arteries converging upon Central Railway Station would soon be carrying trams. There was therefore little incentive to vote for the city railway on top of the expenditure that had been lavished upon the trams.

The trams had the additional attraction of being powered by electricity, a more modern, more efficient, but also cleaner source of power than steam. If and when a city railway was built, it was certain to be electric. It was notable that the electric George and Castlereagh Street trams were generously patronised unlike the older steam tram in Elizabeth Street which was virtually unused. It was both slower and more uncomfortable. Another factor in the delay behind the city railway was the apparently high standards of public hygiene possessed by the citizens of Sydney. This was true in 1885 when James Hoskins, an ex-Secretary for Public Works warned against an underground train system powered by steam:

Travelling by an underground railway in London is by no means agreeable, and it certainly would not be agreeable or healthy in a climate like that of Sydney. They burn coke on the underground

58 Parliamentary Standing Committee on Public Works, Report No 2, together with minutes of evidence and plan relating to the proposed electric tramway from Belmore Park to Fort Macquarie, NSWPP, vol 5, 1900, p.6.
railways in London; but I believe that sulphurous vapour emitted from the engines is regarded by the medical profession as having a very prejudicial effect upon the lungs of the person travelling on these railways. What would it be in this climate, where we burn coal...it is likely that people travelling through a tunnel in Sydney would find it prejudicial to their health and be inconvenient also. For that reason they would not be likely to patronise the line as exclusively as is expected.59

The Railway Commissioners agreed that steam trains were undesirable, and for this reason they opposed an underground steam railway envisaged for Hunter Street Station in 1899 by the DPW. The whole station would be 17 to 27 feet below street level and the Railway Commissioners believed that the steam and smoke produced would be 'inconvenient and discomfort and uncleanness would always be experienced from the smoke emitted by the engines, to say nothing of the objections on hygienic grounds'.60 The voltage generated by Ultimo Powerhouse, built in 1899, however, was not sufficient to electrify the heavier railway system and it was not until the construction of the White Bay Electricity Station in 1912 that such power was available to the railways. In the meantime, electric trams fulfilled the function intended for the city railway.

It seems clear that the decision to locate the terminal station at Devonshire Street was a blow to the Eastern Suburbs. It was a far cry from the earliest schemes of city railways. A scheme produced by Eddy in 1888 had a line running first along Sussex, and Kent Streets to curve around to Circular Quay, then to Woolloomooloo Bay, across to Edgecliff Road, descending to Randwick Racecourse, and traversing Waterloo Estates before joining Erskineville Station. Even this was 'needlessly limited' according to the Building and Engineering Journal.61 The editors of this journal proposed extending a line from the city out to North Botany Head.

In August 1901, a few days after the Carruthers motion, O'Sullivan released a new extension scheme to the public. Designed by Henry Deane the main feature of the scheme was a circular line run along a viaduct through Kent Street to a secondary terminal station in the 'Rocks', returning via a tunnel underneath Elizabeth Street. It was an attempt to lay a line in such a way as 'to afford means for the construction at some

59 Quoted in K.J. Cable, op cit, p.319.
61 Building and Engineering, 1 Sept, 1988, p.156.
PLAN SHOWING THE PROPOSED ROUTE OF THE CITY RAILWAY.
future time of a line to the eastern suburbs and a connection across the harbour by means of a bridge to North Shore'. The notion of a railway run along a viaduct the length of Kent Street, however, doomed the scheme from the start and again exposed the problem of a city railway powered by steam.

The decision to locate the central railway station must be regarded as a major factor in the steady westwards expansion of the metropolis. It was as if the centre of Sydney was gravitating to the west. A country member, William Affleck, made the point that the centre of the city was not necessarily fixed in the present day business portion of the city. Indeed with the growth of commercial activities both to the west and east of the city Redfern 'will form a natural centre for the city for all time. At any rate, it will be nearer to the natural centre than the point that has now been suggested will be'. William H. Wilks, M.L.A. for Balmain North, suggested that the trend of the debates in December 1899 emphasised that if Redfern station was not now in 'a central position as far as the city is concerned, [it] will be so very soon'. Of course, it is questionable if the point would have been so readily conceded by him if it was intended to locate the station near an Eastern Suburb. His constituency lay to the west of the city, and he had a vested interest in seeing to the extension of public services to the west. A representative of Woollahra, an Eastern Suburb, pointed out that there was within the Legislative Assembly a division between those who favoured a westwards, and those who favoured an eastwards, shift in railway services:

I see that there are two parties in the House for the city extension. There is the party that want it to go west-and they are pretty strong-and there is the party that want it to go east, and the Government are afraid of falling between two stools..

The persistence with which the Railway Commissioners pursued the Hyde Park site serves as a reminder of the possible alternative routes that might eventually have been taken. Had this site been chosen a railway link to the Eastern Suburbs may have been constructed at an earlier stage with all the potential consequences for the distribution of

62 SMH, 26 Aug 1901.
63 NSWPD, 20 Dec 1899, p.3678.
64 DT, 7 Jan 1909.
65 NSWPD, 7 Dec 1899, p.3083.
metropolitan growth. It may also have held up the construction of the Sydney Harbour Bridge, and instead contributed to the construction of a tunnel under the harbour somewhere in the vicinity of Fort Macquarie. Finally, the construction of a Hyde Park terminal, supported by the influential railway engineers, including Deane, Eddy, and Oliver, would have produced precisely the same result so lamented by Lewis Mumford, the mutilation of the city by a vast railway yard. Mumford mourned that:

Except in certain parts of Europe where old-fashioned bureaucratic regulations happily kept the railway stations at the outskirts of the historic city, the railroad was permitted, or rather, was invited to plunge into the very heart of the town and to create in the most precious central portions of the city a waste of freight yards and marshalling yards, economically justifiable only in the open country. The yards severed the town's natural arteries and created an impassable barrier between large urban segments...\(^{66}\)

It was the political masters, from Henry Parkes\(^{67}\), George Reid to E.W. O'Sullivan, who objected to the engineer's schemes, and who blocked their efforts to bring these schemes to a conclusion. The relative impotence of the Railway Commissioners in the choice of location, so significant in terms of the future direction and content of the service they operated, forms a surprising backdrop to the central station. Even the Devonshire Street site appears to have been originally suggested by Henry Parkes.\(^{68}\)

The Central Railway Station was perhaps the first step in the eventual modernisation of the Sydney Railway System, involving electrification, the Sydney Harbour Bridge and the Eastern Suburbs connection as it provided a focus for the expansion of the suburban railway system. The process by which this transport network came into being was described by James Fraser, Chief Railway Commissioner from 1917 to 1929 as 'the materialisation of the best thoughts of a considerable number of able men'.\(^{69}\) This would appear to be a fair assessment of the often separate, but interlocking, series of developments that we now call the Sydney

\(^{67}\) See Gunn, *Along Parallel Lines*, p. 209.
\(^{68}\) Ibid.
\(^{69}\) Fraser, 'The Railway System, Past, Present, and Projected, of the City of Sydney and its Suburbs', *op cit*, p.209.
Railway System. As we have seen these men consisted not only of railway engineers, but also government architects and other engineers, private individuals and, politicians. The eventual outcome was not, therefore, always a sustained plan come to realisation but rather the result of debate, expertise, and no doubt mistakes amongst various groups and individuals.
Chapter 2.

Electric Trams and Electric Railways 1900-1914.

The failure to extend the railway into the city centre did not prevent Sydney from becoming what has been described as a 'public transport city' between 1900 and 1910. It has been estimated that apart from the Second World War, the most rapid increase in the use of public transport in both Sydney and Melbourne occurred in the first two decades of this century. The bulk of the increased traffic was carried by the trams, whose service had reached huge proportions by 1914. Trams carried the bulk of traffic to and from the Eastern Suburbs, to and from the main recreational areas of Sydney, and most of the traffic within the city, with the focus upon the Central Railway Station. Furthermore, Sydneysiders used the trams extensively, perhaps more so than in any comparable city in the world.

A consequence of the growth, and apparent popularity of the trams was increased congestion in the city. There were too many trams, they were awkward and difficult to manoeuvre. Trams were carrying passengers for much greater lengths than they were originally designed for, and this resulted in lengthy journeys on certain routes by comparison with trains. All these factors eventually lowered the profitability of the tramway system, and by 1920 it was running at a loss.

The need for a city and suburban railway system to at least complement the tram system therefore became obvious during the first two decades of the century and a series of enquiries, public debates, and government committees led to the beginning of the city railway in 1916. The construction of the city railway, however, was preceded by a perhaps more prominent process of enquiry and public debate on a connection to the North Shore. The process culminated in the acceptance of a design for

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2 Evidence of Thomas Johnson, 24 April 1909, *Royal Commission for Improvement*; Johnson believed that the fact that some three quarters of a million people used the trams on Easter Monday 1909, one and a half times the population of Sydney, was evidence of an especially heavy use of the trams: 'I do not know of any other place in the world where the movement of traffic can be compared with that.' Robert Hickson, the President of the Sydney Harbour Trust, appeared to agree with him, p. 245.
3 Wotherspoon, *ibid*, p.158.
a bridge to connect the North Shore with the city by the Public Works Committee in 1913. This paved the way for a settlement of the design of the Sydney Railway System.

A significant feature of what became the Sydney Railway System was that it was initiated, constructed, and maintained by the Government of New South Wales. The principal agency by which this was carried out was the DPW. The Government, and the DPW, became involved in the construction of public transport in Sydney with the Tramways Extension Act 1880 which empowered the DPW to build tramways for Sydney. Once the tramway was built, it was handed over to the Railway Commissioners for use. The Eastern Suburbs became well served by the steam trams which ran out from the city as a result of the legislation.

The most dramatic expansion of the trams, however, was overseen by E.W. O'Sullivan when he was made Secretary for Public Works in 1899. From 1899 to August 1903 the DPW constructed 64 miles of tramlines, and another 3 miles were authorised. Most of these were in Sydney; the other areas which received new tramlines were Broken Hill and Newcastle. Up to 1900 Sydney utilised some 77 miles of tramlines, but the length increased to 125 miles by 1908. To judge from the number of passengers making use of the tramways in Sydney the expansion was highly successful, passenger journeys jumping from 64 million in 1900 to 130 million in 1904.

**The Tramway Electrical System.**

The expansion and the zeal with which O'Sullivan promoted the tramways was based upon the availability of electricity. When the Ultimo Powerhouse was opened in 1899 it provided a clean, popular and profitable source of energy for the tramway system, which could be relayed to all parts of Sydney. The powerhouse was situated at the juncture of Harris and William Henry Streets, at the head of Darling

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4 Parliamentary Standing Committee on Public Works, report, together with minutes of evidence, appendix and plans relating to proposed bridge to connect Sydney and North Sydney, NSWPP, vol. 1, 1913.
7 Lennon and Wotherspoon, ibid, p.114, Appendix.
Harbour. It was ideally placed to utilise the coal and water necessary for the plant. Much of the equipment, such as the dynamo and the pumps, was supplied by the American General Electric Co., while the battery of boilers was designed by the DPW's own Tramway Construction branch.8

The energy generated by the plant was conveyed to a switchboard designed by General Electric Co., issuing a current of 5-600 volts through feeder cables to Sydney. Seven underground cables went first to Liverpool Street, and then they were carried towards Dawes Point. Along the way they were connected to the tramways at various points in the city. Some of the cables were taken across the harbour to the North Shore where they powered local trams. The more numerous overhead feeder cables were taken to more distant suburbs, including Rushcutter's Bay, Cook's River, Dulwich Hill, Newtown, Leichhardt and Balmain. All these cables eventually conveyed electricity to the overhead trolley wiring in use in the Sydney tram system.9

Glebe Island and Pyrmont Swing Bridges.

Among the most immediate use for the new electricity supply was to power the Glebe Island and Pyrmont Swing Bridges, opened in 1902. Although some aspects of the bridges were designed by J.J.C. Bradfield when he was in the Engineering Drawing Offices, most of the 'moving parts', involving electrical power, were designed by Percy Allan, engineer for bridge design in the DPW. The bridges stood at the threshold of the new technological era. Timber was used extensively in the bridges in addition to steel, concrete and electricity. In the case of the Glebe Island Bridge, this appears to have been the responsibility of Parliament rather than a question of engineering. Parliament were unwilling to vote for an entirely steel bridge on the grounds of cost and it only permitted the use of steel for the single swing span.10

In the case of the Pyrmont Bridge, Bradfield used timber to support the sandstone masonry and concrete of the retaining walls of the bridge.

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9 Ibid, p. 27.
10 Richard Raxworthy, The Unreasonable Man, the life and works of J.J.C. Bradfield, Public Works Department History Project, Hale and Iremonger, 1989, p.28.
New South Wales Tourist Bureau, 1914.
Bradfield pushed down turpentine piles through mud and clay as far as the rock bed to form a base for the masonry work. This system was in operation in many parts of the world, quite successfully, and at a reasonable cost.\(^{11}\) The whole of the bridge was flanked by timber spans, which apparently gave it a 'temporary and inferior appearance'.\(^{12}\) All the engineers involved, including Allan, favoured the use of steel to flank the bridge, but they were overruled by the Public Works Committee. The engineers did not object to the use of timber as such, but thought that steel was more suitable for the heavy loads which were expected to traverse the bridge. The strength of the timber spans, consisting of ironbark, was thought to be one-half that of wrought iron, and Allan admitted that the design of the spans was more difficult than if steel, 'a more permanent material', had been used.\(^{13}\) The decision of the Public Works Committee to use timber was purely economic. It was believed that considerable savings could be made by using timber as much as possible rather than steel.\(^{14}\)

Electricity and the expansion of the trams. 1899-1912.

It was plain that the engineers of the DPW were keen to use the new technology, especially since New South Wales had a 'rich government', as one engineer put it.\(^{15}\) It has been suggested, however, that 'only very occasionally did the initial stimulus for the construction of a [tram] line come from within the department itself'.\(^{16}\) This, however, may overstate the case for local initiative, and correspondingly, underestimate the expansionism of the the Department of Public Works. Henry Deane, Engineer-in-Chief of the Railway Construction Branch from 1889 to 1906, was a noted advocate of tramway construction. Deane was impressed by the success of tramways in the United States of America when he visited that country in 1895, and his observations of the system were conveyed


\(^{12}\) Discussion, on Percy Allan, 'The Pyrmont Bridge', *Minute of Proceedings of the Institute of Civil Engineers*, vol. 170, 1906-7, p.45.

\(^{13}\) *Ibid*, p.67.

\(^{14}\) *Ibid*, p.45.

\(^{15}\) *Ibid*.

\(^{16}\) Lennon and Wotherspoon, op. cit, p.112.
in a report to the Legislative Assembly on his return to Australia.\footnote{17} Deane was also impressed by the use of electricity as a means of power for the trams:

> Every small city has its electric line, and the system seems to be the one which most generally serves the public the best. Outcries have been raised about the danger and unsightliness, but the public convenience has almost invariably outweighed these objections, which are, in my opinion, very much overrated.\footnote{18}

An especially significant advantage to the electrically powered trams was their capacity to climb steep hills. Deane noted that they were able to climb steep grades of between 1 in 7 and 1 in 9 'without any difficulty' in San Francisco. Given the hilly terrain of Sydney this was a very pertinent factor in their introduction.

The overhead trolley wiring system which most impressed him, however, appears to have been in England rather than in America. Deane had noted that the most 'sightly' system in operation appeared to be the South Staffordshire Tramway in England. The system utilised overhead trolleys that could be rotated around completely to connect with wire and brackets on the side of the road. In this way the overhead and stay wires that were so marked a feature of other systems were 'almost entirely dispensed with'. According to Deane the trolley wires and supports on the side of the road were 'less conspicuous than the telegraph lines on the opposite side'.\footnote{19}

It is unlikely, therefore, that the appointment of Henry Deane to head the Tramway Construction Branch in 1899, the increase in tramway mileage in the five years that followed, and the construction of Ultimo Powerhouse in 1899 for the purpose of supplying electricity to the trams was entirely coincidental. On the contrary, it is likely that Deane was instrumental in pushing ahead with the expansion of the trams. Deane had been head of the Railway Construction Branch since 1889 and had evidently carved out an important niche for himself within the department. It is notable that when Robert Hickson was appointed Engineer-in-Chief of the DPW in 1895 he was given supervision of the whole department with the exception of the Railway Construction Branch.

\footnote{17}{Railways and Tramways, report by Engineer-in-Chief for railway construction during his visit to Europe and America, on NSWLA, V&P, Part 3, 1894-5.}
\footnote{18}{NSWL A, V&P, Part 3, 1894-5.}
\footnote{19}{Ibid. p.3.}
Unlike the other branch heads Deane was not answerable to Hickson but only to the Under-Secretary and the Secretary for Public Works.

Trams were popular, profitable\textsuperscript{20} and they assisted, at least, the development of the metropolis. Within the space of a few years Deane’s branch opened lines from St Peter’s Bridge to Cooks River, south west of the city, and from Cleveland Street to Kensington Racecourse, in the Eastern Suburbs. This latter line was then extended to the Rifle Range in Randwick. A line was also continued from Rifle Range junction as far as Little Bay by the end of 1901. By August 1902 a tramway line reached out to La Perouse, 6 miles from Cleveland Street. The rapid increase in the population of Randwick, from 6,500 in 1891, to 9,500 in 1901, and to 19,500 by 1911 was undoubtedly assisted, and may even have been caused by these tramway extensions. Another area to experience the expansive effects of the tramways was the harbour strip of Woollahra and Vaucluse, the most northern part of the Eastern Suburbs. The old Ocean Street to Rose Bay line was continued along to Dover Road and then on to Watson’s Bay at the tip of Vaucluse in May 1903. in the Western Suburbs, Drummoyne was connected to the city by a line stretching from Rozelle in December 1902.

The electrification of the tramways was swift and painless. The new city lines running towards the Central Railway Station were connected to the electricity supply soon after the opening of Ultimo Powerhouse. The suburban lines were also quickly electrified. The new line to Cooks River at Canterbury was powered by electricity from the time it opened in 1900. The lines to the Western Suburbs of Glebe Point, Leichhardt and Balmain were all electrified by 1902. The electrification of the Eastern Suburbs occurred in 1902 and the line out as far as Botany was electrified by 1903.\textsuperscript{21} The bulk of the metropolis to south, east and west was therefore served by electric trams by the time O’Sullivan lost office in 1904. The process of electrification slowed down in 1904 but continued in 1905. By 1908 all tram services running into the city were electric. The only remaining services powered by steam were operating


\textsuperscript{21} Royal Commission for the Improvement of Sydney, 1909, evidence of Jon Kneeshaw, Tramway Traffic Superintendent, p.11.
in the suburbs of Ashfield, Burwood, Parramatta and Sans Souci, none of which were directly connected to the city.\textsuperscript{22}

Although the overall momentum of tramway construction favoured the maximisation of services, the schemes supported by either O'Sullivan or Deane were not always brought to fruition immediately. In December 1901 O'Sullivan proposed a new route to be examined by the Public Works Committee,\textsuperscript{23} He hoped to have a tramway run from Addison Road and the New Canterbury Road to link up with the Dulwich Hill railway terminus. This was intended to serve the Marrickville area, in the southwest, a district where:

...there is a very large population, and it is morally certain, from what we can learn beforehand, that the line will pay from the day it is opened. I [O'Sullivan] think it will lead to a large development in the way of building and settlement in one of the most favoured suburbs of Sydney.\textsuperscript{24}

O'Sullivan also proposed a new line to Woollahra, in the east. This would avoid Oxford Street and hopefully relieve the heavy load of trams and omnibuses using that street at present. Like the Dulwich Hill line O'Sullivan was certain it would not suffer from a shortage of passengers. A large area known as the Cooper Estate had recently been sold and subdivided and this had led to an 'immense development in the way of buildings from Woollahra to Bellevue Hill':

This tramway will also go through a very populous locality. From start to finish it will serve an immense number of people in a district where houses are going up almost every day.\textsuperscript{25}

However, both of these schemes suffered delays. The Dulwich Hill and Bellevue Hill lines were held in abeyance until 1908 when they were constructed under the auspices of Charles Alfred Lee, who succeeded O'Sullivan as Secretary for Public Works in August 1904. Lee was initially hampered by a shortage of funding for public works, and it was not until 1906 that he set the DPW about expanding the tramways. He moved in Parliament in October 1906 that a line be constructed to Bellevue Hill, based upon proposals of the Public Works Committee in 1902. It was

\textsuperscript{22} Ibid.
\textsuperscript{23} NSWPD, 18 Dec 1901, vol 112, p. 4577.
\textsuperscript{24} Ibid.
\textsuperscript{25} Ibid.
intended to have the line run along Park Street and Glenmore Road, almost parallel to Oxford Street. It was expected not only that the line would relieve some of the pressure on Oxford Street, but hopefully compete with the fifty five privately owned omnibuses which ran through Paddington every day.\textsuperscript{26} Not long afterwards Lee again brought forward the Addison Road to Dulwich Hill proposals for sanction.\textsuperscript{27}

The stage looked set for a renewed period of tramway construction. The new lines constructed up to the outbreak of the Great War in 1914 included the two proposals for Bellevue Hill and Dulwich Hill, and lines running over Middle Harbour in the Northern Suburbs from the Spit to Manly, and over Gladesville Bridge up to Ryde (Hatton's Flat). All of these lines had been proposed at some stage by O'Sullivan during his time in office. Whatever political gains they may have procured for O'Sullivan evidently did not deter Lee from carrying them out. The criteria adopted by O'Sullivan for tramway construction appeared to be no different to those adopted by Lee. This suggests that the complex factors of popular demand, local authorities, and the various agencies of the state, such as the Railway Commissioners and the DPW, were equal to the narrow political interests of any Secretary for Public Works in the decision to build trams.

The politics of the trams.

Just how these factors operated is well illustrated by the long running issue of the tramway extension over Gladesville Bridge in Drummoyne to serve the area known as the Field of Mars on the northern side of the Parramatta River. The Field of Mars (Marsfield), which stretched from Lane Cove River eastwards over the area now known as Ryde, covering over six thousand acres, was sold as Crown Land in the 1880's. Land sales were slow, however, with the result that the then Minister for Lands, James Squire Farnell, promised that a tramway would be built soon to connect the area with the city. This promise was ratified by the Parkes Government in 1887.\textsuperscript{28} The tramway, however, had not been built by the time O'Sullivan reached office in 1899. Having managed to construct a line to Gladesville Bridge in Drummoyne in 1902, O'Sullivan promised, in

\textsuperscript{26} NSWPD, vol. 132, 4 Oct 1906, pp. 2556-7.
\textsuperscript{27} NSWPD, 18 Oct 1906, p. 2903.
\textsuperscript{28} NSWPD, 14 Dec 1906, p.4937.
the following year, that he would order the extension of the line over the bridge and bring a line as far as Epping. He was aware, however, of the strength of opinion against the line, and he proposed to carry it out in sections. He proposed that each section would cost less than £20,000 in order to override the Public Works Committee. O'Sullivan took the first step in his plan when he turned the first sod in the construction of the line in June 1904 at Gladesville. Nothing more was done about the line, however, by the time that the new ministry, led by Joseph Carruthers, was formed in August, and the scheme was postponed indefinitely.

Charles Lee could not evade the responsibility to honour the promise made so many years before by a previous government, however, and he felt pressed by the deputations of the local residents of Ryde to carry the line across the bridge and up to Ryde. Lee considered doing this in sections, but he was informed by the Crown law officers that this would be illegal. The whole matter had to be referred to the Public Works Committee. The prospects of the Committee agreeing to the scheme were slim, and the Railway Commissioners were strongly opposed to it. They estimated that a line as far as the Field of Mars would cost £64,000 to build exclusive of land and compensation, and based upon this figure, the tramway would run at an annual loss of £7500. The main difficulty was the scarcity of population in the area the tramway was proposed to serve. Up to 1907 Gladesville had only a population of 1600, while Ryde had 3850. The further north the line went, the less people it served, a mere 1000 in the Field of Mars, with a further 243 within a half mile radius of the town.29 In addition, part of the area was served by the Great Northern Railway which stopped at Ryde and Epping.

In an extraordinary twist, the Public Works Committee recommended in January 1907, the construction of a new line from Balmain, over Glebe Island Bridge, and Pyrmont Bridge to Harris Street, two months before the enquiry into the Drummoyne-Epping line.30 It was intended to link up this line with the line to Drummoyne. If the justification for the line to Epping was questionable, it was doubly so in the case of the tramway from Balmain to Harris Street. The original proposal involved taking the

29 Parliamentary Standing Committee on Public Works, NSWLA, Report, together with minutes of evidence relating to the proposed electric tramway from Drummoyne to Epping, via Gladesville, Ryde, and the Field of Mars, 1907, p.8.
30 Parliamentary Standing Committee, on Public Works, NSWLA, Report...relating to proposed electric tramway from Harris-Street, via Miller-Street, Abattoir-Road, Glebe Island Bridge and Weston-Street, to Evans-Street, Balmain, 1907.
line over Glebe Island Bridge only, a short cut of three minutes, or of 26 chains in length. The Railway Commissioners were resolutely opposed to this since they estimated that this line would run at an annual loss of £14,000. The Department of Public Works was equally opposed to the line, although less forcefully. Joseph Davis, Engineer-in-Chief of the DPW, told the committee, 'personally, except to give a shorter route to Balmain, I do not quite see what interest this tramway is going to serve'. When asked to explain his opposition to the idea, William Hutchinson, who succeeded Deane as the new Engineer-in-Chief of the Railway and Tramway Construction Branch replied cautiously:

I am not opposed to it...I cannot say that. I was asked whether I thought the expenditure justified, and I expressed my own personal view that I thought it was not...that the result would not justify the cost.

This new tramway certainly seemed superfluous as it would not serve any new centres of population. Balmain was already served by a tramway as well as three ferries. It was intended to remove the abattoir at Glebe up river to Homebush fairly shortly, thus removing a major source of employment, and therefore potential passengers, from the area. There were many other areas more in need of a tramway and it was difficult not to be suspicious of the motives surrounding the proposal. One MLA suggested:

There is something behind all this eagerness to extend tramway communication to such places as Balmain, Drummoyne, and Petersham. Apparently it was a good thing to be a supporter of the Government.

He may well have been referring to Thomas Henley, a conservative MLA for Drummoyne. Henley had extensive property interests in the suburb of Drummoyne, situated to the west of Balmain, and which contained the Gladesville Bridge which connected Drummoyne with Ryde. Henley was keen to have the shorter route to Balmain constructed, as well as the tramway to Ryde, and consequently a more direct tramway route to the city from Drummoyne. As well as being of convenience to his tenants, the tramway would in all probability add to the value of his interests in the area. Henley was a vociferous supporter of the schemes in

31 Ibid.
33 Kelly(The Lachlan), NSWPD, 14 December 1906, 4910.
the Legislative Assembly and he repeatedly complained that the Railway Commissioners and the DPW were doing their best to have the scheme blocked. Another enthusiastic supporter of the line was E.W. O’Sullivan, who first brought the proposal to light after meeting a deputation from the local councils involved. After reminding the Legislative Assembly that he was responsible for laying down twenty nine lines in NSW, he told the house, 'in every case you see a tremendous expansion in building operations and new suburbs arising, to the general benefit of the people'. However this could hardly be said in favour of the new Balmain to Harris Street line. There was little room to build new suburbs in the area, as much of it was already built to capacity.

After deliberating on the evidence provided to them the Public Works Committee voted by a margin of four to three to recommend the new line, but with one important condition. This was that the line should eventually continue on over the new Pyrmont Bridge, thus saving a considerable amount of time from the route around Darling Harbour. Their recommendation of the construction over Glebe Island Bridge therefore should be seen as a first section of a more direct route to the city. The new line would run over not one but two swing bridges when it was eventually completed.

The prospect of running a tramway over two swing bridges was not enticing to the Railway Commissioners. The potential disruption caused by the opening of the bridges, particularly of the regularly used Pyrmont Bridge, made this the most unlikely of tram routes. The recommendation of the Public Works Committee only makes sense when seen in relation to the forthcoming enquiry into the Field of Mars extension, a point which the committee was keen to emphasise:

That while by itself, or, in other words, if it not be carried further than Harris street, the tramway as proposed, will neither be profitable from a revenue producing aspect nor of potential benefit to persons travelling from Balmain and beyond that suburb, it will, with the extension over Pyrmont Bridge, prove profitable within a reasonable period, and meet the requirements of the travelling public not only of Balmain and Drummoyne being extended to Ryde, of Gladesville, and the Field of Mars.36

34 Parliamentary Standing Committee on Public Works, NSWLA, Report relating to proposed electric tramway from Harris Street to Evans Street, Balmain, op cit, p.107.
35 NSWPD, 14 Dec 1906, 4910.
36 Parliamentary Standing Committee on Public Works, NSWLA, Report relating to proposed electric tramway from Harris Street to Evans Street, Balmain, op cit, p.16.
This enquiry had in fact pre-empted the later enquiry held in March into the Field of Mars line. The only way to justify the expense of the new Balmain line was that it would serve an even larger population over the Parramatta River. The tramway over the river, however, had not been built, or even authorised. The authorisation of the Balmain line prejudged the line over the Gladesville Bridge and it was inevitable that it would be approved all the way to Hatton's Flat, Ryde, which it was. The later recommendation was something of a compromise as the Railway Commissioners had softened their opposition to the Field of Mars line by suggesting that they would be prepared to open a line to Bridge Road, Gladesville, a little further back. The DPW, on the other hand, while opposed to the new Balmain line, was favourable to the eventual extension to the Field of Mars, although Davis suggested that this should be done in sections.37

The conflicting views of the Railway Commissioners and the DPW stem from the different criteria adopted by them to judge new lines. To the Railway Commissioners, the viability of a line depended upon clearly established evidence of profitability based upon present population levels. They did not take into account the potential expansion of the population. The officers of the Department of Public Works, on the other hand, took a combination of factors into account before reaching a conclusion. These included the estimates provided by the Railway Commissioners but also future estimates of the population. When William Hutchinson was asked if proposals depended upon population estimates he replied, 'population, the trend of traffic, and the likely development of the district'.38 The Department of Public Works was therefore more clearly involved in metropolitan expansion than its colleagues in the Railway Commissioners. At a stage when tramways were invariably successful, from the point of view of profitability, and also from the point of view of contributing to the growth of the metropolis, the support generally shown by the DPW for tramways was inevitable.

What eventually held up the continued expansion of the tramways, however, was the widely-held opinion that there were enough tramways in Sydney as things stood. It had long been considered that George street

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37 Parliamentary Standing Committee on Public Works, NSWLA, Report relating to proposed electric tramway from Drummoyne to Epping, via Gladesville, Ryde, and the Field of Mars, 1907, p.3-4.
was overcrowded, but with the construction of lines parallel to it, the area around Belmore Park and the Central Railway Station became congested. The new Woollahra line was supposed to relieve Oxford street, but again this contributed to a further volume of tramway traffic in the city. When David Storey, MLA for Randwick pressed for more tramways to the Eastern Suburbs, Lee replied that 'tramways have been put down to such an extent that the city is congested and you can hardly put down another tram.' By 1914 there were 125 miles of tramlines directly connected with the city, including those in North Sydney, and these carried nearly 260 million passengers in that year. The number of passengers therefore had more than doubled in the last decade, and had easily outstripped the pace of tramway construction. In 1914 Arthur Griffith, Minister for Public Works warned that even with the most 'expeditious construction' of a city railway, 'the certainty is that the congestion must increase to such an extent that there will be a breakdown of the general traffic'.

Henry Deane, the City Railway, and the North Shore Connection.

Henry Deane had never intended that the electric trams would replace the railway extension, and he pressed consistently for an extension of the railway to the city. In 1899 he told the Public Works Committee:

We should carry the railway into the city by some means or another. I am sure, from what I know of the experience of other cities, that the proper thing to do with suburban traffic is to carry it to some convenient spot right in the city. In no large city is a pair or two pairs of surface tramway rails anything like sufficient for the traffic.

His views on this matter were undoubtedly influenced by what he saw in the United States of America and in Europe. He was opposed to the American system of light, and often overhead, trains to complement the trams, but instead preferred a heavier and often underground train

41 NSWPD, 2 Oct 1913, vol 52, p. 2233.
42 Parliamentary Standing Committee on Public Works, NSWLA, V&P, report together with minutes of evidence and appendix relating to the proposed extension of the railway into the City of Sydney, July 1900, p.172.
system. The overhead train system, while convenient for the passenger, was very damaging to property. Deane was alarmed by the protracted claims for damages arising out of the construction of the overhead railways in New York when he visited the city in 1894. A solely underground system on the London model, on the other hand, was enormously expensive and it was unlikely if such a system could ever be sanctioned by any government in New South Wales.

What Deane had in mind was a railway to serve the Eastern Suburbs that took its own course, quite independent of the trams, with the least possible interference with street traffic. He had seen in America how urban authorities were increasingly impatient with street level railways. Many American cities were now trying to compel railway authorities to remove street level crossings. There was little room to manoeuvre with these conditions, and although the members of the Public Works Committee pressed Deane repeatedly on the suitability of trams, he refused to concede that they might pre-empt the need for a city railway. There were only two main thoroughfares which would give access to the Eastern Suburbs from the city, the Old South Head Road, and the New South Head Road, and they would not be able to cope with the increased amount of traffic that was expected in the near future. Furthermore:

Trains would carry more passengers than the present trams, and would convey quickly to their destinations people coming from long distances. Passengers by train would be conveyed into the city much more conveniently than passengers by trams which had to stop at nearly every street corner all the way in.

In the case of the Western Suburbs it was already obvious that unless some form of railway extension was constructed to bring railway passengers from these suburbs closer to the city, the traffic and congestion around Redfern Station, and along George Street would soon be unbearable. The trams running out to the Western Suburbs were not yet directly connected with George Street, but when the connection was made, however, in the near future chaos would result if there was no alternative railway system to bring the passengers closer to the heart of the city:

There is a great deal of traffic to be brought into George street from each of those lines - not only the traffic which is running now on the steam trams, but the increase of traffic due to the development during the next period, and the increase of the traffic which the Railway Commissioners are now providing for, which is on the streets, but which is now carried by omnibuses very largely.\textsuperscript{45}

By 1900 Deane had become a vociferous supporter of the Hyde Park site for the Central Station, directing so much of his energy towards the scheme, that Premier Reid considered him to be 'an uncompromising advocate' of it.\textsuperscript{46} The Hyde Park site, however, was a difficult one for Deane to support. It had become increasingly clear that if a bridge to connect the North Shore to the city was to be erected the most likely nexus would be between Dawes Point on the south and McMahon's Point on the north. The Hyde Park railway site was quite simply unsuitable in this scheme of things. In order to run a railway over a bridge between Dawes Point and McMahon's Point the obvious direction was along the western, or Sussex Street side of George Street. It would be very difficult indeed to connect Hyde Park with the prospective bridge as it would either have to run under, or over, the prime commercial property in the city, and the expense and inconvenience of this was prohibitive.

Deane was unwilling to admit that the Hyde Park site raised severe obstacles. He made the extraordinary suggestion that the scheme should be judged in so far as it effected other plans for the urban structure:

\begin{quote}
I see no reason why the North Shore trains should be brought to meet any city railway extension for the west, nor do I agree with the statement that no scheme for city railway extension would be complete without provision for a North Shore connection. I am convinced that each proposal should stand on its own merits...\textsuperscript{47}
\end{quote}

It was impossible, however, to conceive of a city railway scheme that did not take the North Shore Connection into account, whether this would be a bridge or a tunnel. Deane had unwittingly fallen into a trap set by E.M.G. Eddy. Eddy had advocated the Hyde Park site on the basis that a North Shore Bridge was not then, nor would be in the forseeable future, worth the expense of its construction. The choice of the site was therefore

\begin{flushright}
\textsuperscript{45} Ibid.
\textsuperscript{46} Ibid, p.20.
\textsuperscript{47} Ibid, 28 Mar 1900, p.171.
\end{flushright}
based on the assumption that there would be no connection with a bridge over the harbour. The logic of this was never made more clear than when Deane argued that if the Hyde Park site was found to be impractical, the train line could be taken back to Liverpool Street and then round to the west side of the city on a new line. It might be asked why bring the trains to Hyde Park in the first place if they had to be taken by the west side of the city anyway?

Deane's idea of a line serving the Eastern Suburbs which would run down the eastern side of George Street was strongly opposed by the rival engineers, Norman Selfe and William Greenwood, before the Public Works Committee in 1900. They argued for a western route, from Redfern and along the Sussex Street side of George Street. On the face of things, the western extension appeared to be a more suitable. The eastern extension would only take the railway line to an area of the city dominated by parklands, including the reserve of the Government House, the Public Domain, the Botanic Gardens as well as Hyde Park. The western line, on the other hand, would serve the more heavily populated commercial areas of Sussex Street, the Town Hall and Wynyard Square.

Deane countered the case for the western line when he highlighted major flaws in the schemes presented by Selfe and Greenwood. He also asserted that it would be a mistake to mix the suburban train system with the North Shore line, saying that it would be necessary to have two quite separate lines through the western portion of the city and over the North Shore Bridge. One line would be for suburban traffic and the other line for country traffic. The committee scotched this possibility, however, stating 'it does not seem likely that the Government would go to the expense of two, roughly parallel lines through West Sydney.'48 He succeeded, however, in disabusing the committee members of any notion of adopting the schemes of Selfe and Greenwood. Despite their quite lengthy replies to his criticism of their schemes, the committee did not consider that either Selfe or Greenwood responded sufficiently to it.49 The committee therefore could not recommend either of their respective proposals.

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48 Ibid, Report, p.163.
49 Ibid, see appendix C, p.257. Amongst other things, Deane objected to the length of tunnels required in Greenwood's scheme, the site of the Circular Quay station, and the construction of a tunnel under the Town Hall.
The North Shore Connection.

The conflict between Deane and his rival engineers must be put into the context of the competition organised by O'Sullivan for the design of a North Shore Bridge. Deane may have feared that the precipitous choice of a site for the North Shore Bridge would dictate the design of the city railway. A bridge demanding a western route would almost certainly postpone the construction of the Eastern Suburbs railway. E.W. O'Sullivan was determined, however, to press ahead with the connection. A competition was advertised in the Government Gazette in January 1900 for a 'Bridge and Approaches connecting Sydney and North Sydney, via Dawes and McMahon's Points'.50 Both Sefie and Greenwood were competitors and Deane was a member of the departmental 'Board of Reference' that had been appointed by O'Sullivan to examine the entries. The advertisement called for a bridge of one span. The span had to have at least 600 feet of clear headway above the water. The deck had to include two footways, each ten feet in width; two roadways, each twenty feet in width; and space for a double line of railway. In addition, provision had to be made for a connection with the Milson's Point railway despite the condition that the bridge was to land on McMahon's Point on the other side of Lavender Bay.

Twenty four entries were received by the closing date in September 1900, but none of them could be implemented as they were not of high enough standard. The Advisory Board which examined them reported that many of the designs were 'so incomplete and wanting in information, either as regards designs, plans, or estimates, as to deserve but little consideration'.51 In November the first prize was awarded to Norman Sefie and F. Bohny of the German MAN company for their design, "Sablazo", and second prize was awarded to the designers of "In Suspense". The designs which most impressed the Advisory Board, however, were those of the American Bridge Company, "Ex Conjunctione Firmitas". The Advisory Board felt it could not award a prize to the company but it reported that the company's designs 'would probably

51 Ibid, p. 915.
Landmarks in Public Works, Coltheart and Fraser, p. 104.
Location of bridge decided by Sydney Harbour Bridge Advisory Board in 1901. The demolished Walsh Bay wharves are shown in dotted lines.
SYDNEY HARBOUR BRIDGE.


"Terra Firma"

"Digna Sequamur"

"Sablazo"

"Ex Conjunctione Firmitas"
Design No.1.

Sydney Harbour Bridge Advisory Board Plans.

59
SYDNEY HARBOUR BRIDGE.


United Sydney

Lethario

E Unum Pluribus

Sunt Belenkibogen

Wait and Hope

Sydney Harbour Bridge Plans.
Sydney Harbour Bridge Plans.

62
prove the best subject of negotiations'. The Board then suggested that further designs be sought from the American Company.

The Second North Shore Bridge Advisory Board 1901-03.

A second Advisory Board was appointed the following year to inquire into the modifications necessary in order to allow the competitors to submit more practical designs. The new board consisted of Joseph Davis, the new Under-Secretary, after the departure of Robert Hickson; Henry Deane, Colonel Walter Vernon, and Ernest MacCartney deBurgh (Roads and Bridges Branch). In addition to the officers of the Department of Public Works, O'Sullivan appointed William Warren, Professor of Engineering at Sydney University, and J.M Purves, a representative of 'commercial and northern suburbs interests'. Before going on to advertise for new designs, the Advisory Board took evidence from shipping interests to ascertain just exactly what was required in a North Shore Bridge. Among the witnesses was none other than Hickson, who gave evidence on behalf of the Sydney Harbour Trust. Other witnesses included C.W. Darley, former Engineer-in-Chief for Public Works, and Captain Bird, the 'Sydney Harbour Master. Based on the evidence supplied by these witnesses the Board came to the conclusion that the bridge must stand a clear 170 feet over the water at high tide for a total length of 600 feet. The main span should measure 1,200 feet and there should be a central pier. The board also concluded that the entrants should make suggestions for the bridge approaches as these were inextricably linked with the eventual construction of the bridge in reality. As far as the deck was concerned, the board suggested that a double line of railway, and a roadway with provision for tramways, ought to be included.

These conditions were so different from the previous design that the board recommended that an entirely new competition should be held. Approval was given and on the 17 May 1901 the DPW issued a notice calling for new tenders in the Government Gazette. Entries were due in February 1902. In the meantime, both Deane and deBurgh were given

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52 Ibid
54 Report of the Sydney Harbour Bridge Advisory Board, *ibid*, p.917,
responsibility for the design of the remaining approaches on the North Shore and in the 'Rocks'. The closing date was eventually extended to June 1902, by which time some twelve entries had been received, consisting of nineteen different designs.

The new entries (see appendix) were a considerable improvement on the designs submitted for the previous competition, and the Advisory Board examined them with eye to the actual construction of a North Shore Bridge. What the Advisory Board found most difficult to deal with was the enormous size, and in particular, the incredible height of the designs. The top of the weather vane in Observatory Hill, the high point in the 'Rocks', measured 212 feet above sea level, and the high point of Lane Cove Road on the North Shore stood at 307 feet above sea level. All the designs submitted soared higher than these two points. The lowest bridge, of cantilever design, by William Arrol and Co stood at 320 feet above sea level, whereas the highest, design No. 6 of J. Stewart and Co. reached 550 feet above sea level at the top of one of its towers. If any of these designs were implemented they would dwarf any other structure in Sydney:

The highest points of some of the designs, visible far out to sea, would in fact be the first objects that would be sighted, in the day time by vessels approaching the land in the latitude of Sydney.

Consequently, the Advisory Board took the extraordinary decision of ruling out arch bridges from their plans:

We think it evident, therefore, that a bridge with a long, high sky-line, would not be acceptable, notwithstanding its relatively low cost, and it would be preferable if the culminating points were those of the towers of a suspension bridge or of a suitable type of cantilever bridge.

Thus, the now familiar arch bridge over Sydney harbour was excluded from the reckoning, and in all the debates and enquiries that followed it was presumed that the bridge would eventually be of suspension or cantilever design. The design was, in fact, that envisaged by Parliament when the Sydney Harbour Bridge Bill was passed in 1922. (It was not

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56 *Ibid*, p.918.
57 *Ibid*. 

64
until 1923 that Bradfield began to promote an arch design, it being cheaper and, it is probably fair to say, easier on the eye.58)

This was a bitter blow to those who supplied designs for arch bridges. One such was the entry of Alex Findley and Co. which consisted of a large span 2,100 feet in length, rising to 396 feet above the high water mark. Although the Advisory Board admitted that this design 'presents a very fine appearance in itself', it was certain that this type of bridge would prove 'objectionable'. Furthermore:

> It is to be noted that the span is exactly two and a half times that of any arch bridge yet erected; the bridge across the Niagara Gorge is the largest hitherto constructed and is 840 feet span.59

Another entrant to include arch designs was J. Stewart and Co., designed by none other than Norman Selfe. Of the six designs proposed by him, two might be said to be arched, No. 5, and No. 4. The latter design was somewhat unusual, with a narrow span of 1,500 feet and foundations built of timber piles. Its chief advantage was that it was the cheapest design on offer, estimated to cost £1,112,859. This was not enough to sway the Advisory Board:

> The appearance of the bridge is not agreeable, and it would be considered an eyesore if erected, the height of the top of the arch being 420 feet.60

The board raised similar objections to scheme No. 5., stating that it was objectionable 'from an artistic point of view'.

Other designs tended to be rejected on the grounds of impracticability or cost, such as the elegant design of the Paris based Fives-Lille Co. This was by far the most 'artistic' design but it was estimated to cost £3 million when most of the other designs were estimated at less than two million pounds.

The designs which most impressed the board were those of Arrol and Co., the E and C Bridge Co., and the No.1 design of J. Stewart and Co, and these were among the entries asked to submit amended schemes, in the light of the flaws pointed out in the examination, in March 1903. The design of Arrol and Co. was similar to the design with which they won

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58 Raxworthy, *The Unreasonable Man*, p. 69.
Sydney Harbour Bridge Advisory Board Plans March 1903.

67
Sydney Harbour Bridge Advisory Board Plans March 1903.
the competition in 1900, 'Sablazo'. The board still thought highly of the design, but again, the 'high skyline' went against it. The two other designs were thought to be more artistic.

The entry of the American E. and C. Bridge Co. was designed by Joseph Mayer, designer of the Hudson River Bridge in New York. According to J.C. Turk, the representative of the company in Sydney:

Our design for the North Shore Bridge may be said to be the design of the Hudson River Bridge, modified to meet your local requirements.\(^{61}\)

Aspects of the Brooklyn Bridge were also taken into account as Mayer was also closely associated with this bridge. The board expressed anxiety over the foundations of Mayer's design, as the weights involved were far heavier than any of the other entries. J.C. Turk was unable to offer any satisfactory explanation for the heavier weights, leaving it up to the board to suggest means of reducing the weight of the foundations. These modifications, however, would be costly and greatly increase the estimate of the bridge which had been put at nearly £1.5 million. This design was therefore rejected.

**The Winning Entry of Norman Sefte and the German MAN Co.**

The winning entry was submitted by the Sydney firm, J. Stewart and Co. The superstructure of the bridge was designed by the German MAN Co., and its engineers, Dr A. Rieppel and Mr F. Bohny. Norman Sefte designed the substructure as well as acting as Consulting Engineer for the modifications proposed by the board. The design was for a cantilever bridge with a main span of 1,350 feet between the piers. The towers were treated artistically by the tenderers, and one was topped by a pavilion, 400 feet up from the sea, for sightseers. Most of the foundations were set in rock but one, the northern main pier, was set in clay. Ten alternative methods of overcoming the difficulty were suggested by the tenderers, including freezing the clay. The latter method was examined and apparently found to be satisfactory.\(^{62}\)

The Board reported that 'of all the tenders submitted' they had no hesitation in recommending for selection that of Messrs. J. Stewart & Co.

for the supply and erection of the bridge...’63 They took into account the fact that the bridge would not only be the 'accomplishment of a great engineering work', but it would also be a 'further adornment of a city which already possesses great natural beauties'. The design would 'harmonise' with the surrounding area. The estimate for the bridge was given at £1,365,050, the second lowest estimate in the competition. The steel required would be imported from Germany.

Norman Selfe must have felt that all his efforts had now been rewarded. The best laid plans, however, can go astray, and this was certainly true of Norman Selfe's plans for the North Shore Bridge. The report of the Sydney Harbour Advisory Board was issued in a time of 'temporary financial depression' in 1903 and the report was not acted upon. The following year, Charles Lee, the new Secretary for Public Works informed Selfe that the Government did not intend to proceed with the work.64 Equally disappointing was the decision not to compensate any of the competitors for their efforts, even though these were worth £30,000 at a moderate estimate, according to Selfe.

Selfe pursued the matter over the next few years but to no avail. Charles Lee called together the members of the Sydney Harbour Bridge Advisory Board in June 1905 in order to seek advice on Selfe's claim for compensation or for a return of his plans. They met again in September 1905 and recommended that all the plans of the entries should be sent back to the competitors, with the exception of the plans which won first and second prize. These latter plans, they claimed, were the property of the Government. Selfe's plans remained in the offices of the DPW, and were not returned to him. Nor for that matter had Selfe been given any premium for his entry, unlike the winners of the first competition. The toll of events, according to Selfe, ruined him 'financially and professionally'.65

Selfe was also bitter about the decision to exclude arched bridges from the competition. In 1908 he stated:66

63 Ibid.
64 Raxworthy, The Unreasonable Man, p. 39.
65 The refusal of the Advisory Board to compensate him was based on the fear of setting a precedent. The board reported that compensation to Selfe 'would be opening the door for similiar claims from other competitors'. report of the Sydney Harbour Bridge Advisory Board, vol 6, 1903, p 915.
It was clear what was wanted, but unfortunately there was nothing to indicate that any objection would be entertained to an arched bridge, or anything with a high skyline in the centre. It so happens that an arched bridge is the cheapest to construct; and in order to meet every contingency, I and my colleagues supplied six designs in the second competition for entirely different bridges...All this labour involved in the preparation of those plans would have been saved - 500 or 600 pounds of our labour would have been saved - if we had known at the outset that there was an objection to an arched bridge.67

Selfe's ruination, however, seems to have been chiefly caused by the shortage of funds available to the Government for public works in 1904. The expenditure of the DPW was reduced from £4.5 million in 1903 to 1,727,530 in the year 1904-5. The reduction in expenditure continued over the next three years, and it is only in 1907 that it again rose above £2 million, of which over half a million pounds was spent on railways and tramways.

In addition to cutting back on the expenditure of the DPW, the Government also reorganised, or 'retrenched' the department in January 1904. All temporary staff were dismissed and a total of 439 officers were retired. These officers included Henry Deane who was commissioned to tour America and Europe prior to his enforced retirement at the relatively young age of 57. Deane was selected for retirement as he was considered to be the most 'senior', if not the oldest, public servant apart from those serving the Railway Commissioners, the Sydney Harbour Trust, and the Crown Solicitor and the State Judges. The Government were prepared to pay for his trip, for twelve months, and when he returned he was expected to enter into the leave outstanding from his long years of service, unless 'railway construction had been started on a sufficiently large scale to warrant his further employment'.68 The renewal of railway construction did not materialise and Henry Deane resigned from the DPW in 1906. The only expenditure by the Railway and Tramway Construction Branch from 1903-06 was upon the Central Railway Station, and virtually no new railway line was built in New South Wales during those three years.

Norman Selfe therefore never had the opportunity to construct his North Shore Bridge. Although Selfe had produced the most feasible design

67 Ibid, 22 May 1908, p.15.
68 Deane Papers, Mss 610, Statement May 1905 by Henry Deane.
for a connection, the timing of its adoption could not have been more unfortunate. Government cutbacks and retrenchments delayed the implementation of the project with the result that by 1907 it was almost impossible to revive. When the Government again began to look seriously at the North Shore Connection project in 1909, it was pointed out that Selfe's project could not be carried out because the Government had only recently entered into an agreement with the Lithgow steel works, and it was bound to have large amounts of steel supplied from that source if a North Shore Bridge was built. In Selfe's project, the German MAN Co. were to supply the steel.69

Selfe had graced New South Wales with a number of technological advances, including the first elevators and ice machines, but he was not to grace Sydney with its North Shore Bridge. Circumstances of timing, economics, and perhaps some professional jealousy conspired against him. His name did not become synonymous with the bridge, or even the City Railway, although both were to a large degree a legacy of his efforts. The credit for the bridge and the city railway was given to neither Selfe or Deane, but to a younger engineer in the employ of the DPW.

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69 Royal Commission on Communication, 1909, p. 3.
Chapter 3.

John Job Crew Bradfield and the Sydney Railway System.

The person most closely identified with the design of the city railway and the North Shore Bridge is John Job Crew Bradfield, who worked on the project until the opening of the bridge in 1932. Bradfield was placed in charge of their construction in July 1912 when he was made Engineer-in-Chief of a branch of the DPW with the sole function of building the railway and the Harbour Bridge. The appointment was a recognition of his brilliance and his knowledge of the issues involved. The close association between Bradfield and the bridge, however, has exaggerated his role in the planning and design of the Sydney Railway System. Quite recently, it was mistakenly assumed that the system was the outcome of some 'Bradfield Plan':

The Sydney Harbour Bridge was initially conceived, designed, and constructed as part of a wider plan which envisaged an integrated transport system for the whole of Sydney and its suburbs, known as the 'Bradfield Plan'.

To attribute the design of the system entirely to Bradfield is a distortion that was largely fostered by Bradfield. He was not only brilliant, but also ambitious and eager to underline his contribution to Sydney for posterity. He had been involved in the creation of the system in its early stages but so had many others. The plans and designs which eventuated in the creation of the system were formed by a number of engineers, over a period of fifty years, working with the Railway Commissioners, the DPW, or privately.

Bradfield was appointed Engineer-in-Chief of the Sydney Harbour Bridge and City Transit section of the DPW in July 1912 after the Public Works Committee accepted his design for a bridge to the North Shore. The bridge stretched from Dawes Point to Milson's Point, rather than to McMahon's Point as in the case of the Advisory Board's bridge. This meant that the bridge covered a shorter expanse of water than the

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2 The following year he was promoted to the position of Chief Engineer, Metropolitan Railway Construction.
designs for the Advisory Board, and the two piers were allowed to be brought onto land. What is significant about the bridge, however, was that it was in fact an updated version of the winning entry of the 1903 Advisory Board competition. This was made clear in April 1912 when Bradfield was questioned by John Storey, the chairman of the Public Works Committee which approved of the design, on its origins. Storey put it to him that 'The cantilever bridge represented by you on your plan is simply the Advisory Board's bridge, with the piers brought into the shore?'. Bradfield replied emphatically "Yes". Bradfield had been appointed, in fact, to his position of Engineer-in-Chief on the basis of a modified version of what was in almost all its features the bridge designed by Norman Selfe in 1903, nearly ten years earlier. The only major change in design, apart from the location of the bridge, was the use of nickel steel in the new bridge.

This is not to underestimate Bradfield's achievement in having succeeded with his designs. It was Bradfield who persuaded the Public Works Committee and Arthur Griffith, the Minister for Public Works, that the bridge should go to Milson's Point rather than McMahon's Point, and it was he also who finally scotched the notion of building a tunnel to connect the North Shore with the rest of Sydney. This was a difficult task as the tunnel idea became something of an orthodoxy from 1909 to 1912. Ultimately Bradfield's achievement lay in stating conclusively that a bridge for vehicles and railways was better than a tunnel, and that a bridge to Milson's Point was better than a bridge anywhere else. Yet even in these instances, Bradfield was guided by other engineers, in particular by David Hay, a British engineer bought out to Australia by the New South Wales Government in 1912.

The decision to use Selfe's bridge was not entirely unexpected. It was after all the property of the Government, and it was perfectly feasible. It was favourably considered by the Royal Commission on Communication 1909, which consisted of Henry Deane, Charles Oliver, of the Railway Commissioners, and Maurice Kernot, Professor of Engineering at Melbourne University. They reported that of all the bridges they examined 'that recommended by the Sydney Harbour Bridge Advisory

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3 Parliamentary Standing Committee on Public Works, NSWPP, Report, together with minutes of evidence, appendix and plans relating to proposed bridge to connect Sydney and North Sydney. Vol 1, 1913, 24 April 1912, p.271.
Board... stands pre-eminently the best.' Furthermore, W.J. Hanna, head of the Roads and Bridges Branch told the Royal Commission that by 1903 the question of the Sydney Harbour Bridge had reached such a stage that 'a tender for the bridge could then have been accepted'. Regrettably, Hanna admitted that the conditions had been so altered that it would be unlikely if Selfe's design could be used. Even the need for the bridge appeared to be less urgent. Hanna told the Royal Commission that with the completion of the Central Railway Station 'the question of the City Railway Extension has been put aside for a time' and consequently, the North Shore Connection could not be politically justified.

An improved economic climate, and a renewed confidence in its ability to procure large amounts of capital prompted the Wade Liberal Government to examine the question of the connection to the North Shore and the city railway in 1908. In that year, the Government appointed two Royal Commissions, one to examine the question of a connection and the other a city railway. The Royal Commission on Communication which examined the question of a connection confirmed that a connection was necessary because of the rapid increase in the population of the North Shore. Despite the inconvenience of the ferries, the population of the four major municipalities on the North Shore, North Sydney, Mosman, Lane Cove, and the Shire of Kuring-gai, together increased from 1901 to 1907 by over 10% per annum, in contrast to 3% over the whole of Sydney's city and suburbs.

The Royal Commission on Communication, however, rejected the time honoured proposition for a bridge in favour of a connection by tunnels, or subways. The Royal Commissioners suggested building three separate subways, one each for rail, tram, and vehicles and pedestrians. The tram and vehicular subway would stretch from Dawes Point to Milson's Point, and the railway subway would stretch from Fort Macquarie to Kirribilli Point. The recommendations of the commissioners, including Deane, were guided by the example of many other large cities around the world. They noted that the 'modern trend in constructing railways through large cities is decidedly in the direction of placing them underground.' New York already had 21 miles of underground railways, London had 55 miles,

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5 Ibid. p. 3.
6 Ibid, p. x.
7 Ibid, p.xxii.
while Paris also had a large system. It seemed sensible therefore to direct the city railway system to pass under the harbour by subway.

There were many advantages to the railway subway. It would not obstruct the harbour in any way, a subway was cheaper to build than a bridge, and if more subways were required, they were cheaper and easier to build than additional bridges. Perhaps the most significant advantage was that it would not be necessary to have all the subways built at the same time. The subways could be built at different times for either railways, tramways and for vehicular traffic, thus giving greater flexibility to those who were responsible for the planning of the metropolitan transport facilities. In the case of a bridge, the whole structure would have to be completed before any of the transport facilities could be connected up with one another across the harbour.

The commissioners further recommended that the tramway subway should be built before the subway for the railways. The tram system was already electrified, it carried more passengers than the railways, and the system had already been extended into the city, unlike the railways. When it came to a matter of economics, the city railway could wait for the time being, and subsequently, the railway subway also, until the Government felt ready to embark on its construction.8

The recommendation to carry the trams across the harbour before the railway worried the Railway Commissioners. They feared that the tramway system would win all before it, leaving the railway system in abeyance if the trams were brought across the harbour. They believed that the Government would probably delay the costly electrification of the railways, and the trains would continue to be powered by steam. In turn the delay in electrification would postpone the city extension. Thus the city railways might be permanently held in check by the tram network.

By 1909 there appeared to be no policy within the DPW on the merits of either a tunnel or a bridge. According to Henry Harvey Dare, from the Engineering Designing Office, the DPW gave little attention to the issue, and it was only moved into action when it was asked to deal with schemes put forward by private individuals.9 Individuals within the DPW, nevertheless, often let their preferences be known. Ernest

8 Ibid, p.xxvii.
9 Ibid, p.5.
The Salon, February 1914, p. 474.
MacCartney DeBurgh, acting Chief Engineer for the Rivers, Water Supply and Drainage Branch, told the *Royal Commission on Communication* that he personally favoured a bridge. He believed a tunnel would involve very steep grades on the North Shore which trains and trams could handle easily, but not pedestrians and carriers. Two of the schemes presented to the *Royal Commission on Communication* were by engineers employed by the DPW, Percy Allan and Alfred Howarth. Allan suggested a bridge along the lines of the Glebe Island Bridge and the Pyrmont Bridge, both of which he designed. Allan proposed a low lying bridge from Dawes Point to Milson's Point, interestingly enough with an opening span 420 feet long. The bridge would have two decks, one for trains and trams, and another for vehicles and pedestrians. The commissioners did not give this proposal much consideration and they dismissed the low level bridge as 'quite unsuitable'.

Alfred Howarth, a senior Second class Assistant Engineer with the Harbours and Rivers Branch proposed ingenious schemes of sub-aqueous viaducts for trams between Dawes Point and Milson's Point. He also proposed a subway for trams and, later on, a submerged bridge from Dawes Point to Milson's Point for trains, trams and vehicles. These schemes were not fully worked out, but the commissioners believed that some of his ideas were worth pursuing.

Another engineer to propose a city railway underground was Joseph Davis, the former Under-Secretary of the DPW, who had been appointed consulting and inspecting engineer based in the Agent General's Office in London. Davis was appointed to examine the latest engineering issues in London for four Australian states, New South Wales, Victoria, South Australia, and Queensland. From London Davis sent details of a railway scheme which was largely based on his knowledge of the London Underground. The railway stretched from Central Station through the city and across to Milson's Point via subway but it was considered to be deeply flawed in that it envisaged the use of quite small tunnels, merely 12 feet in diameter, to take the railway under the harbour. As a consequence the city railways would have to operate on smaller rolling stock than the country trains.

11 Ibid, p.xv.
ROYAL COMMISSION ON COMMUNICATION.

BETWEEN

SYDNEY AND NORTH SYDNEY.

March 1909.

SUBAQUEOUS VIADUCT.

FOR CONTINUOUS TRANSIT OF ELECTRIC TRAMWAY AND RAILWAY

TRAFFIC ACROSS SYDNEY HARBOR.

Darves Battery Reserve to Milsons Point Station.

Submitted by A. M. Howarth

Line of High Level Bridge

Submerged Bridge
The whole question of the North Shore Connection was therefore in a state of great confusion by the end of 1909. The only matter on which the various interests involved appeared to agreed upon was the need for a railway subway from Fort Macquarie to Kirribilli Point and the tunnel was referred to the Public Works Committee in December 1909. However, the Public Works Committee were not able to report on the matter before a change of government in 1910 and the North Shore Connection was delayed once more.

The McGowen government and the North Shore Connection.

The accumulated enquiries and discussions were having their effect, however, and the new Labor government which came into office in October 1910 came under increasing pressure to have something done about the North Shore Connection. In March 1911 Premier McGowen received a deputation from the Sydney Chamber of Commerce, and from representatives of shipowners and of the Broken Hill works. They all complained about the regulations imposed by the Harbour Trust, claiming that they infringed upon the flow of shipping in the harbour. In reply, McGowen argued that the regulations were a direct consequence of the enormous ferry traffic in the harbour to and from the North Shore, and that the complaints raised the urgency of the North Shore Connection. McGowen stated that he personally favoured three tunnels, one each for vehicles, trains and trams.\(^{12}\)

This alarmed the carters and draymen who did not want to face the steep grades up the North Shore. The Master Carriers Association received a hearing from the Government shortly afterwards when they pointed out their objections to a vehicular subway.\(^{13}\) The Master Carriers Association asked that a bridge be built for vehicular traffic, to which the cabinet agreed on the 19 July 1911 when it decided that 'a definite proposal for a bridge to carry tramway, vehicular, and pedestrian traffic, but not a railway' be referred to the Public Works Committee.\(^{14}\)

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\(^{12}\) SMH, March 1911, Sydney City Council Newscuttings.
\(^{13}\) J.J.C. Bradfield, 'Linking Sydney with North Sydney', The Salon, February 1914, p.476.
\(^{14}\) Ibid, p.476.

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The railway would be carried across the harbour by tunnel, and this proposal was also referred to the Public Works Committee. Both these enquiries began to hear evidence in the Spring of 1912.

Much attention has been given to Bradfield's claim that he personally steered the Government away from tunnels, and that he also caused the Government to review the Advisory Board's bridge. For this we have Bradfield's own account, published in 1932 on the opening of the Sydney Harbour Bridge:

I told the Minister that the Advisory Board's bridge would be a menace to navigation, that the subways as proposed would obstruct navigation and were not suitable for vehicular traffic on account of the high foreshores, particularly on the northern side of the harbour, and was given permission by Mr Griffith to submit my design for a bridge spanning the harbour from Dawes Point to Milson's Point, without any obstruction to navigation, as a counter proposal to the two submissions by Parliament.\(^{15}\)

It is true that in November 1911 Griffith allowed Bradfield to present his own private proposals for a bridge to the Public Works Committee. Bradfield was now head of the Engineering Design Branch after Henry Harvey Dare was moved to work as Principal Designing Engineer of Irrigation and Drainage. Bradfield had been stationed in the Engineering Drawing Office since 1891 and he had an intimate knowledge of the Advisory Board's schemes as he and Dare were responsible for the design of the approaches. Bradfield was later the principal designer for tramway and railway construction from 1906, and again, he teamed up with Dare to produce the plans for many of the railway schemes presented to the Royal Commission for Improvement. Bradfield's expertise on the city railway proposals and the harbour connections had evidently come to the attention of the Public Service Board by the end of 1911. In January 1912 the Board recommended that if the Sydney Harbour Bridge was approved by Parliament, Bradfield ought to be selected to design and construct it.\(^{16}\) It was for this reason that Arthur Griffith, the Minister for Public Works, set him 'exclusively apart', as Bradfield put it, in order to provide Griffith with all the necessary information on the bridge, and also to provide a design for a bridge for tram, vehicle and pedestrian traffic in fulfilment of the cabinet decision in 1911.

\(^{15}\) *DT*, 19 March 1932, p.14.

\(^{16}\) *PWDAR, NSWPP*, Vol. 3, 1913, p.43.
Bradfield's Suspension Bridge February 1912.

For the purpose of carrying trams, vehicles, and pedestrians across the harbour Bradfield presented a scheme for a suspension bridge from Dawes Point to Milson's Point to the Public Works Committee in February 1912. It was not intended to carry a railway, which would proceed instead by subway from Fort Macquarie to Kirribilli Point as already planned. At this point, Bradfield's innovation lay in convincing the Minister for Public Works that a long standing orthodoxy should be reviewed, that the bridge for vehicular traffic should go to Milson's Point, rather than to McMahon's Point. It had been for this reason that Griffith gave Bradfield permission in December 1911 to present his design for a bridge 'without any piers in the fairway'. This would remove at last the anxiety of the Harbour Trust that the bridge would be a major obstacle to shipping in the harbour. It would also remove the general anxiety that a collision involving a large ship and one of the piers would result in the collapse of the bridge. Modern ships were certainly large and heavy enough for this to be a possibility. This bridge, nonetheless, was not intended to carry trains.

The bridge presented by Bradfield to the Public Works Committee, as his own work, was of suspension design stretching from Dawes Point to Milson's Point with its piers on solid ground. Although it had not been subject to the same rigorous checking that previous schemes had faced Bradfield assured the committee members that it was 'perfectly practicable'. He was then working out the details of the bridge with Dare and with Professor Warren, both old hands from the Advisory Board days. Bradfield was quite emphatic about the virtues of the railway subway. Only through this method could a passenger from the North Shore have the choice of travelling to the west or the east without changing trains. If the trains came up the western portion of the city a passenger would have to alight either at Wynyard Square or at Central Station, and then change trains in order to reach the Eastern Suburbs.

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18 Parliamentary Standing Committee on Public Works, on Bridge to connect Sydney and North Sydney, 27 Feb 1912, NSWPP, vol. 1, 1913, p.246.
19 When Bradfield was asked 'Taking a comprehensive view, and looking to the future, and the certainty that there must be a connection by rail, you consider that the under-water scheme is the best?', his reply was a resolute, 'for the railway, yes' ibid, 27 Feb 1912, p.229.
Apart from the avoidance of obstruction and of collision, Bradfield outlined even more advantages of his scheme.

From Dawes Point to Milson's Point my bridge spans the whole waterway, it also goes in the direct line of traffic, and I think it will run out cheaper than the bridge recommended by the Advisory Board, but that has yet to be proved.\(^{20}\)

### David Hay and the railway connection.

The visit, and the recommendations, of David Hay, a British tunnel engineer, finally convinced Bradfield of the merits of a bridge to carry all traffic, including railways. Hay had been invited by the Government to visit and inspect traffic facilities in Sydney, and then report his findings to the Government. Arthur Griffith instructed Bradfield to provide Hay with all the necessary details and by all accounts the two men established a good working relationship.

To Hay, the high land on the North Shore presented a 'prima facie' case in favour of a bridge, and a bridge was obviously superior to a subway from an 'engineering and an utilitarian standpoint'. Furthermore, Hay supported the position of the Railway Commissioners and rejected the idea of carrying the tramways over the harbour. To do so 'would only add to the evils of congestion.'\(^{21}\) He recommended that in place of tramways, four lines of railways should be brought across the harbour in view of the enormous expansion of the North Shore that would probably occur as a consequence of the bridge.\(^{22}\)

The virtues of a large rail carrying-bridge now seemed so obvious that Bradfield had to review his plans. The main drawback was the lack of a direct connection to the Eastern Suburbs from North Sydney by rail. The undoubted advantage of the railway subway was that a passenger could go from the Eastern Suburbs to the North Shore without changing trains. To overcome the obstacle, Bradfield proposed a loop from Town Hall Station around to Liverpool Street and then on to the east, and in this way a passenger from the North Shore could go to the Eastern Suburbs

\(^{20}\)Ibid

\(^{21}\)Ibid, p.338.

\(^{22}\)Report regarding the Question of Improving the means of passenger transit in the city and suburbs of Sydney, including a connection with North Sydney (together with plan) by Mr. David Hay, NSWPP, vol.3, part 2, 1912, p.761.
without changing trains. Therefore all objections to a railway bridge were overcome. Bradfield returned to give evidence to the Public Works Committee and outlined his revised plans. He told them:

I find it possible to reach the Eastern Suburbs by means of a loop between a station in front of Town Hall and the station in Hyde Park near Liverpool street, without changing trains, so the only objection which ought to be raised against communication by bridge has been overcome. Hence communication by bridge is superior to communication by subway.23

Once Bradfield had announced the loop he threw himself fully into the advocacy of the bridge to carry rail and vehicles. Over the following months he outlined in detail the advantages of the bridge. He told the Public Works Committee that a bridge would enable the North Sydney station, between Blues Point Road and Walker Street, to be kept above ground. Consequently the tram traffic would be relieved. An underground station might have very little effect on the tram traffic heading across the bridge as many passengers would feel that it was inconvenient to get off a tram and then descend by steps or lifts to get to a train. Another advantage of a ground level station was that the line could be extended to other areas at a much lesser expense than with an underground system which would have to be tunneled across the North Shore.

The bridge also cut the travel distance across the harbour by three quarters of a mile compared to the railway subway. The grades were more manageable for vehicles than the tunnel and there was little or no obstruction to ships. The tunnel, which was to have been 40 feet below sea level, might in the future prove to be a barrier to large ships with a deep draught. It was proposed to have the tunnel run at forty foot below sea level and this limited the depth of the harbour to forty foot for ever more. In addition it was probably cheaper to carry a railway across the harbour by bridge rather than by tunnel.24

Bradfield's Cantilever Bridge October 1912.

What Bradfield proposed to replace the tunnel was a revised version of the 1903 Advisory Board bridge. Bradfield believed that the cantilever

23 Public Works Committee on Bridge to connect Sydney with North Sydney, op cit, p.338.
design was more rigid and better adapted to the heavier traffic of the railways than his original suspension bridge. In this matter he received the support of Thomas Johnson, the Chief Railway Commissioner, who told the committee that he also considered the cantilever design to be more suitable for railways.\textsuperscript{25}

The new bridge was outlined to the committee on the 30 October 1912, complete with estimates and structural details. Much of the estimates had been worked out by Bradfield and Hay during the previous months. The new bridge would stretch across the harbour in one clear span. At the centre of the span the bridge would be 170 feet above high water mark, making it the highest steel bridge of its kind in the world. From the centre of the bridge to the centre of either tower would measure 1,550 feet. The cost of the new bridge compared favourably with the Advisory Board bridge to McMahon's Point. Taking into account price changes since 1903, Bradfield estimated that the bridge to McMahon's Point, designed in 1903 would now cost £1,730,400 in contrast to the new bridge to Milson's Point which he estimated cost £1,709,700.

Step by step Bradfield took the members of the committee through the pros and cons of the various schemes. If the subways were to give the same accommodation as the bridge, they would be more expensive. Since the object of the connection was for the convenience of the residents of the North Shore, a bridge, especially when connected to Milson's Point railway station, was obviously more suitable. Pedestrians were unlikely to use the subways to any great extent. Not only did the subway fall short on the grounds of convenience, but as Bradfield pointed out, David Hay concluded that the working expenses of the subway was likely to be fifteen per cent greater than that of a bridge. Finally, Bradfield disputed the notion that 'increased accommodation, when required could be provided more economically by additional subways than by bridge'. He maintained that another single span bridge could be constructed from Fort Macquarie to Kirribilli Point if need be.\textsuperscript{26}

Before Bradfield presented his estimates to the Public Works Committee he showed Joseph Davis his new plans. Davis was apparently impressed with them, fully aware that the bridge was a modified version

\textsuperscript{25} Ibid, 17 Oct 1912, p. 298.
\textsuperscript{26} Ibid, 30 Oct 1912, p.331.
of Norman Selfe's bridge of 1903. The main differences were the route to be taken, and the use of nickel steel in the major portions of the bridge:

These suggestions, having regard to the changes that have taken place during the last ten years are certainly advisable, and enable the harbour to be crossed in one span.27

All that remained to be done was to convince the Minister for Public Works that the new design was the correct one. With the blessing of Davis, Bradfield presented Griffith with a minute asking him to accept the new design in place of the railway subway and vehicular bridge that had been approved by the cabinet in 1911. Bradfield stressed that Hay fully supported him:

With the minister's permission up to the present this has been a private scheme submitted by myself. Mr Hay concurs in my view, and I have the honour to ask if the minister is prepared to adopt my design in lieu of the decision of cabinet last year...28

Not long afterwards the Railway Commissioners threw their weight behind the Harbour Bridge, or at least the general idea of it. The commissioners reported that they were favourable to many of the suggestions of David Hay.29 Like Hay, they preferred a connection by bridge to Milson's Point. Power costs would be minimised by bridge, and a bridge was cheaper if the 'maximum required accommodation' was to be provided for. They had misgivings, however, about the bridge as it presently stood. They felt it did not fully provide for the massive increase in the traffic that would follow the development of the North Shore as a result of its construction. These were merely matters of detail, of course, and James Fraser, Chief Railway Commissioner, conferred with Bradfield on these points. What was clear was that the Railway Commissioners favoured the direction taken by Bradfield.

In July 1912 Bradfield had been appointed Engineer-in-Chief of a new branch of the DPW to deal with the Sydney Harbour Bridge and City Transit and the following year he was appointed as Chief Engineer of the Metropolitan Railway Construction. Therefore, after these appointments Bradfield was the person most responsible for the successful construction

27 Ibid, p.333.
28 Ibid.
29 Commissioners Correspondence, 19 Nov 1912, p.4, SRANSWA Mss, 14/4701.
SYDNEY HARBOUR BRIDGE, DAWES POINT TO MILSON'S POINT.

Plan No. 12.

Design Recommended by Public Works Committee, 1913.

Landmarks in Public Works, Coltheart and Fraser, p. 113.
of a harbour bridge and a city railway. It was a major achievement for Bradfield, a culmination of his ambitious assertion of his own abilities, but one largely due to a general recognition of his superiors and colleagues within the DPW of his ability and his experience. What Bradfield and his followers overlooked, however, was his indebtedness to the work of others in arriving at this position and at a design for the North Shore Bridge.

The Genesis of the City and Suburban Railway.

Similarly, Bradfield relied upon the work of fellow engineers to reach a final plan for the city railway. Henry Deane had already drawn up a scheme for a city railway in conjunction with the Sydney Harbour Bridge in 1902. The main features of Deane's scheme included a high level line along Kent Street, to be carried by viaduct over Prince's Street and then over the Advisory Board's bridge. Apart from the North Sydney Connection, the chief feature of this scheme was the extensive loop of the Eastern Suburbs, beginning at Circular Quay, then underground through the Domain. The proposed line continued out to Bondi and Coogee, though not all the way to the coast, and then returned to Central Station. Most of this loop was on relatively high ground, and the drop to the coast was thought to be too much for the railway. In any case, the railway line would serve its primary function of relieving the tram traffic to the east of the city.

William Hutchinson, who succeeded Deane as Engineer-in-Chief of the Railway and Tramway Construction Branch, presented Deane's scheme to the Royal Commission for Improvement. Hutchinson told the commission:

"Generally speaking I do not think I could make any suggestions that would lead to material improvements in his scheme. I think it is a good scheme."30

Its main drawback was that it precluded a connection with a railway subway, which had been recommended by the Royal Commission on Communication as the most suitable means of bringing the railway across the harbour. The Royal Commission for Improvement, however, did not have the connection with the North Shore within its terms of reference,

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30 Royal Commission for Improvement of Sydney, 1909, 11 Nov 1908, p.147.

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ROYAL COMMISSION ON SYDNEY IMPROVEMENT

MR. DEANE'S

CITY RAILWAY SCHEME

OF 1902.

AFTER GROUND
BELOW DO.
EXISTING TRAMWAYS
RESERVES

PLAN NO. 12.
and it was therefore unable to examine in detail, or recommend a connection to the North Shore. To this extent, the recommendations of the Royal Commission for Improvement were pre-empted by the findings of the other commission.

Hutchinson then presented an updated scheme for a 'cut-and-cover' line. This would leave the eastern side of Central Station, proceed over Belmore Park and go underground at Goulburn Street to a station at Town Hall, continuing to a station between Grosvenor Street and Margaret Street, to be called St Phillip's Station, looping around to an underground station at Circular Quay, under the Government House grounds and then under the harbour to Kirribilli. This scheme also had the drawback, however, of precluding a connection with a harbour bridge. According to Hutchinson, it was not possible to have an underground railway connection with a bridge and with a Circular Quay station leading out on to the Eastern suburbs. The grades involved would not permit it.\(^{31}\) However, Hutchinson later submitted an alternative scheme whereby a station at Wynyard Square substituted the St Phillip's Station. In this way a connection could be made with a bridge and with the Circular Quay station.\(^{32}\)

Hutchinson does not appear to have come to any firm conclusions about the relative merits of the bridge and the tunnel by the time he gave evidence to the Royal Commission for Improvement. According to Hutchinson, the same was true for the Chief Railway Commissioner, Tom Johnson.\(^{33}\) This appears to be borne out by the scheme for city railways presented by Johnson to the commissioners in April 1909. Johnson was relatively new to the task, and the scheme was largely drawn up by one of his subordinates, James Fraser, who was then Engineer-in-Chief for Existing Lines. The Railway Commissioners proposed a city railway that, although underground, stayed as close to the surface as possible. The railway began at a station below Central Station, in contrast to many other proposals which began on the eastern side of Central Station. From there it proceeded underground to Town Hall, Wynyard Square and to an underground station at Circular Quay. It was easy then to drop down to a tunnel at Fort Macquarie. A significant feature of the scheme was that it suited both a bridge and a tunnel. If the tunnel was later to be ruled out,  

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\(^{31}\) Ibid, p.142.  
\(^{32}\) Ibid, p. xxxiii.  
\(^{33}\) Ibid, p.144.

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it was still perfectly possible to run the line from Wynyard Square to Dawes Point and over the harbour by bridge. The main concern of the Railway Commissioners was to get the railways over the harbour by any means, rather than deal with the question of the bridge or tunnel. Pressure had to be applied by them to prevent the cancellation of the costly transformation of the city and suburban railways to electricity. The Railway Commissioner's scheme is best seen as a means of guaranteeing that the railways, and not only the tramways, crossed the harbour in the near future.

The Railway Commissioner's scheme was followed by that of David Hay who suggested a complex system of goods lines, city lines, and suburban lines which could be connected with trams. The city or 'Main Line' railway was entirely underground with provision for connection to the North Shore via bridge. The goods lines were also underground, stretching from Darling Harbour to Woolloomooloo, and from Circular Quay to Woolloomooloo. The Western Suburbs line consisted of a loop from Central Station up the Parramatta Road on the one hand, and a connection across Darling Harbour via tunnel to Balmain. The scheme presented by Johnson had suggested a bridge across Darling Harbour for the same purpose. A unique feature of Hay's scheme was his suburban lines were to operate on smaller rolling stock than the Main Line, so that trams could run on them. The suburban lines were to run, in fact, along the main arteries for surface traffic, Oxford Street, and George Street/Parramatta Road. Although Hay conceded that this might result in heavier costs due to the different rolling stock, he believed that the costs would be recouped by the savings made by running along the surface rather than having to build tunnels. Furthermore, although the scheme involved considerable use of trams, the construction of the Main Line would at least ensure that the connection to the North Shore would be by rail and not by trams.

Hay's scheme was submitted to the DPW, and Bradfield in particular, and the Railway Commissioners. Together the Railway Commissioners and Bradfield produced a draft legislation which was a modification of Hay's scheme and which was introduced to Parliament on 2 October 1913. According to Arthur Griffith, the Minister for Public Works, who introduced the bill, the scheme was 'the final joint decision of the officers

34 See Report on Question of Improving the means of passenger transport in the city and suburbs of Sydney, by Mr Davis Hay, op. cit.
of the Railway Commissioners'. Griffith claimed that the scheme, which was estimated to cost £4.8 million, was a modification of Hay's scheme, but there were considerable differences, and it could not really be attributed to Hay. There were no goods lines to Woolloomooloo, and surprisingly, there was no Eastern Suburbs line. The scheme was touted as a cheaper version of Hay's scheme, but its capacity was considerably less than Hay's. As expected the scheme came under fire from members representing the Eastern Suburbs, one of whom claimed that it was:

...a miserable attempt at a scheme for a city railway. I could make a better plan myself. I have no hesitation in saying that although this plan was drawn up by the man who received the first prize for a design for the North Shore Bridge, he is a very poor hand at drawing a plan for a railway...

The bill failed in the Legislative Council and Bradfield had to go back to the drawing board, more sensitive of the interests of the members of Parliament. One of the chief criticisms of the bill was that it appeared to have no relation to the scheme outlined by Johnson on behalf of the Railway Commissioners before the Royal Commission for Improvement in 1909. This scheme was, after all, the only plan produced under oath that conformed to all requirements. Bradfield therefore returned to this plan, and outlined a scheme to the Government which bore all the hallmarks of Johnson's scheme. It had provision for a Western Suburbs loop that crossed Darling Harbour by bridge on its way to Balmain. The line connected with a line that came from Central Station at a point near Petersham. It had provision for an extensive Eastern Suburbs loop, including a railway line serving the recreational areas, including Randwick Racecourse, and Centennial Park. Where the scheme differed substantially from Johnson's was that it operated on a double or 'bifurcated' line of track through the city, in contrast to the earlier scheme which envisaged three lines of track. More importantly, the scheme was really a 'cut-and-cover' style of line, rather than underground. This had been made possible by the decision of the Railway Commissioners in 1914 to move the traffic sidings from a yard on the

35 2 Oct 1913, NSWP, vol lii, p. 2233.
37 See Report of the Proposed Electric Railway for the City of Sydney, NSWP, vol 6, 1915-16.
The City and Suburban Electric Railway, showing where it will cross the Harbour when the Bridge is built.
eastern side of Central Station to the suburb of Alexandria.\textsuperscript{38} When Johnson outlined his scheme there was no space to put a surface railway line for the city railway, and he was forced to put the city railway station under the present railway station. Bradfield's scheme also differed from the earlier scheme in that it provided for a connection by bridge with the North Shore railway; Johnson had been forced to present a scheme for a tunnel connection due to the recommendations of the Royal Commission on Communication.

The Norton Griffiths Contract and the Decline of the Department for Public Works 1913-17.

For a number of years before the passing of the Sydney City and Suburbs Electrical Railway Act 1915 the Government had difficulty in acquiring two resources vital for public works, capital and trained engineers. The build up of the British Navy in the five years before the First World War tied up much of the British capital that would normally have been invested overseas, and the naval build up provided employment for engineers that might otherwise have migrated to Australia. To overcome the difficulty of finding men and money, Arthur Griffith, the Minister for Public Works entered into negotiations with an Australian based engineering company, Griffiths & Co, named after Colonel John Norton Griffiths, a British M.P., based in London, to undertake the construction of large public works privately. The company were empowered to raise three million pounds to carry out the works designated to them, for a commission of 5\%, and it was to be given complete freedom to recruit whatever staff it thought was necessary to enable the works to be carried out. Furthermore, the DPW were expected to provide it with assistance in carrying out the works through the loan of materials and staff.\textsuperscript{39}

The necessity for such an arrangement was made doubly urgent upon the outbreak of war in September 1914, and Griffith opened negotiations with the company in November 1914 for an even more lucrative contract. Agreement was finally reached in April 1915 when the company undertook to carry out works to the value of ten million pounds for a

\textsuperscript{38} 8 July 1915, \textit{NSWPD}, vol lviii, 1915-16, p. 800.
commission of 5 per cent. Griffith advised the Government that unless the agreement was signed, the DPW would not be able to carry out any works after November 1915, resulting in the loss of employment for 20,000 men. The seriousness of the financial position of the DPW was self-evident and the agreement was approved by Parliament.

The Government decided to limit the activities of the company to railway contracts, including the city railway, but even this did not prevent the company from causing large scale increases upon the original estimates for the works. The most significant problem encountered was the wholesale introduction of new engineering staff from England to assist the company's senior engineer, rather than making use of existing staff of the DPW. Inevitably, professional jealousies arose between the engineers employed by the company and the engineers of the DPW. The company's engineers were awarded higher salaries than their counterparts in the public service, and there were accusations that the company engineers were substituting the personal and departmental identifications on the various plans and designs given to them by the DPW with their own names. The practice was condemned by Davis as 'contrary to all the accepted canons of engineering practice and professional etiquette'.

The Norton Griffiths Contract was doomed, however, by the passing of the Railway Amendment Act in 1916. Under the act, all railway construction works were passed over to the Railway Commissioners who resisted the imposition of the contractors upon them, and in March 1917, the Norton Griffiths Contract was cancelled. The Government published a statement defending the company claiming that the cancellation was because of the inability to procure sufficient materials for the railway works due to wartime shortages.

The transfer of railway construction to the Railway Commissioners was a severe blow to the DPW. Expenditure was immediately reduced by a million pounds, and over 262 officers were lost. Furthermore, the maintenance and management of the railways and tramways, which had previously been vested in the Railway Commissioners, was now vested in the DPW. The Secretary for Public Works was consequently also the

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41 Ibid, p.1.
Minister for Railways. The DPW was thereafter entrusted with the more menial tasks associated with the railways. The scale of the change occurring in the DPW can be gleaned from the dramatic decline in the expenditure. In 1911-12, when the costly day labour system was reintroduced by the McGowen Labor Government the department spent over four million pounds, of which £2.3 million was raised through loans. In the year 1916-17, expenditure was brought down to three million pounds, but this was more than halved the following year. In that year the DPW spent just £1,437,000 of which £655,347 was raised through loans compared to the more than two million pounds raised through loans the year before. Many government departments around the world experienced similar cut-backs during the war, but in this instance, the transfer of railway construction away from the department was primarily to blame for the reduction in expenditure.

Under the Railway Amendment Act 1916, Bradfield was made answerable to both the Railway Commissioners and the DPW. He was made head of the Metropolitan Railway Construction Branch within the Railway Commissioners, but he became head of the Sydney Harbour Bridge Branch within the DPW, the harbour bridge being retained by that department. Bradfield might well have found these bureaucratic changes distracting but he had at least retained his position of senior engineer of the works. Whatever progress was made on the works he would be inevitably be closely involved with them, and perhaps in control of them. As it happened, the construction of the city railway which began in earnest in the 1920's was in many respects controlled by his superiors especially James Fraser, who had originally drawn up the Railway Commissioners scheme in 1909. In the case of the Sydney Harbour Bridge, however, which was finally approved by Parliament in 1922, he retained much of the control over its construction.

The story of the actual construction of the railway and the bridge has been told elsewhere, but for present purposes it is important to point out the source of the city railway and the Sydney Harbour Bridge. Many influences affected the final outcome. The work of Norman Selfe is

43 Ibid, p.3.
44 DPWAR, NSWPP, 1919, vol 4, p.3.
perhaps the most noticeable of any single individual, apart from Bradfield, but also included in this category must be the ever present figure of Henry Deane, the chief of rail and tramway construction until 1904, and a commissioner of the 1909 Royal Commission on Communication. Deane was influential in all areas of the various schemes presented through the Advisory Board and the 1909 Royal Commission. The Railway Commissioners, from E.M.G. Eddy to James Fraser, Thomas Johnson, and Charles Oliver, also contributed their expertise. The eventual extension of the city railway over the harbour was in large part due to their efforts, and the final outcome of the city railway was also much derived from the plans presented by the Railway Commissioners to the Royal Commission for Improvement. It is interesting to note that the plan for a railway loop from Town Hall to Liverpool Street Station proposed by Bradfield to balance out the advantages of the tunnel was discarded, and it was not part of the scheme proposed for the City and Suburban Electric Railways Act 1915.

By far the most significant determinant of the city railway and harbour bridge was the DPW, of which Bradfield was an employee. Its combination of brilliant engineers and experience in the politics of the public service gave it enormous power over the construction and planning of these schemes. Davis, Hanna, Deane, Hutchinson, Dare and finally Bradfield all left their imprint on them. Their influence operated through the Advisory Board, the Public Works Committee, the Royal Commission and the confidence in them of the Ministers for Public Works. This influence, however, did not override everything. Ultimately the Public Works Committee remained answerable to Parliament, the Minister for Public Works to his electors, and the DPW to both the Public Works Committee and the Minister for Public Works. The DPW at all times treated the authority of Parliament with circumspection, it did not act autonomously, nor is there any indication that it wished to do so. The honourable manner in which it carried out its duties did not prevent, however, its fragmentation. The scale of its responsibilities, its vast expenditure, and its vulnerability to the vagaries of budgetary requirements made it a prime target for restructuring by whatever government was in power.
Chapter 4.

Technology and Sydney Harbour 1900-14.

The vulnerability of the DPW to the policy of various governments was underlined by the formation of the Sydney Harbour Trust in 1900-01. Among the chief functions of the Trust was to reconstruct the harbour in the wake of new technology, and although this was essentially a 'public work', the DPW was not appointed to take control of the project. Instead, two of its senior officers were drafted to the new Trust which had been granted full control over the reconstruction. Whatever contribution the DPW, as a department, may have had to the physical structure of the port was lost.

The loss of powers of the DPW in this instance was overlooked in the debates in Parliament preceding the formation of the Sydney Harbour Trust. Attention was directed instead to the loss of powers of the Sydney Corporation, which until the formation of the Trust, held jurisdiction over the shoreline of the city. This included the most heavily used portions of the port, Darling Harbour, Sydney Cove, and Woolloomooloo Bay. In any case, the formation of the Sydney Harbour Trust resulted in the establishment of a new arm of the Government, at the expense of both the Sydney Corporation and the Department for Public Works, without any concession of its own powers.

The Outbreak of Bubonic Plague 1900.

The most powerful determinant of the reconstruction was new technology, and the expected increase in sea-going trade. The timing of the formation of the Trust, in 1901, however, was determined by the outbreak of bubonic plague in Sydney in 1900. The plague entered the city from the wharves of Darling Harbour and Dawes Point under which the infected rats accumulated. The disease spread among the waterside families, particularly along Sussex Street. Between January and August 1900, the period at which the plague was at its most intense, some 303 persons were infected, and of those 103 died.

The outbreak prompted members of all parties in the Legislative Assembly to sign a petition

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calling for the resumption of the foreshores to Darling Harbour. The petition, signed by over 90 members, led to the immediate resumption of the foreshores by proclamation on the 3 May 1900.

The Government had already assumed legal control of the area on the 23 March under the Quarantine Act of 1897. Just as William Lyne, the Premier, was pushed by the weight of the Assembly to proclaim the area for resumption, public opinion pushed Lyne towards a general quarantine. All over Sydney 'a great crusade of cleanliness' had been embarked upon in the month of March. Many suburban municipal councils ordered their staffs to clean all their lanes and roads and to disinfect drains and gutters. Garbage disposal was stepped up; horsedrawn omnibuses and cabs were disinfected daily as were many wharves and streets. It was reported that most of the fish in Darling Harbour were killed as a result of the enormous amount of disinfectant that flowed into the harbour.

Despite the efforts of the local authorities, the number of people stricken with the disease rose dramatically from the middle of March. The number of cases rose from two in the week ending 3 March, to five the following week and to twelve the week after. Panic broke out on 21 March when a large and frightened crowd marched on the building where the Department of Public Health was carrying out inoculations. The building was invaded and the staircases were completely packed. Hundreds more tried to force their way in, often through the windows. According to the Chief Medical Officer of the Department of Health, J. Ashburton Thompson, the 'popular excitement' threatened the control of the department in combating the disease.

New Technology, Shipping, and the Port.

The necessity to resume the harbourfront, however, was due more to technological changes than to public health. It had been recognised for some time that the port was in need of reconstruction because of the advent of iron, and then, steel ships. The use of timber had previously

3 Ibid.
4 J. Ashburton Thompson, op cit, p.8.
5 Ibid, p.19; also W.M.Hughes, NSWPD, vol 103, 1900, p.208.
6 J. Ashburton Thompson, op cit, p.17.
placed a limit on the size of ships, but far bigger ships could be built with steel and iron. The first large iron ship to enter Sydney harbour was the Macgregor, a four-masted ship, measuring 350 feet, in 1870. Several other large ships arrived shortly afterwards leading to the appointment of a Select Committee in 1874 to inquire into the state of wharfage accommodation in Sydney Port. Few people interested in shipping, however, fully expected the vast increase in the size and tonnage of ships that would embark in Sydney in the near future. Of the members of the Select Committee, Norman Selfe was alone in advocating the erection of wharfage capable of catering for the maximum size of ships. He suggested that Sydney ought to be able to 'berth the *Great Eastern* should she come here'.

The arrival of the *Lusitania* in 1877 marked the beginning of a revolutionary increase in the size of ships entering the harbour. Vessels of three thousand tonnes were followed by vessels twice their size in the space of a decade. The first of the ships over 10,000 tonnes arrived in 1897. This was the *Barbarossa*, which belonged to the Nord-Deutscher Lloyd Company. Similar-sized steamers of the White Star line followed shortly afterwards. The increase in the size of ocean-going steamers was also reflected in other coastal traders and ocean tramps. The advances in ship technology encouraged greater use of shipping transport, and along with the increase in the size of ships, the tonnage of ships increased rapidly. In 1870, 1,006 ships of an aggregate tonnage of 385,161 entered Sydney harbour but by 1900, the number of ships entering the harbour had risen to 1819 with an aggregate tonnage of 2,716,651. By then it was estimated that Sydney was the tenth largest port in the world in terms of the tonnage handled in it and Selfe's estimation that Sydney ought to plan for maximum accommodation was vindicated. There was, therefore, some credibility in the view he expressed in 1908 that Sydney would someday emulate the greatest port in the world:

> We often hear about New York as the greatest shipping port in the Western World, but there is every indication that when Sydney has

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8 Henry Deane Walsh, *ibid*, pxxv.
reached the age of the American City, our shipping tonnage will be
greater than that of New York at the present day.9

It had therefore become obvious to the Government by 1900 that
the privately owned wharves of Sydney Port were out of date. Their
maximum length was three hundred feet and they had only eighty
or ninety feet between them. This was simply not enough to cater
for the large ships. Lyne was certainly aware of the need for
harbour reform as he had attempted to introduce legislation for a
new harbour authority when he was Secretary for Public Works in
1892.10 The bill was not successful, but in the light of the plague, the
formation of a new authority was opportune.

Among the supporters of a new authority were the shipping
companies. They were eager to press for a general reconstruction of the
harbour, and the plague provided them with the perfect opportunity for
their claims. When Premier Lyne met the shipping companies before he
made the order to quarantine the area, they urged the Government not
only to clean the wharves but to take one step further and resume the
whole area for the purpose of reconstructing the wharves 'on a broad
national basis'.11 They maintained this was the only sure way of ridding
the city of the plague.

The attempt of the shipping companies to pass on the cost of
reconstruction to the state is somewhat ironic as they were to a large
extent responsible for the poor condition of the wharves. For many years,
they avoided paying wharfage rates to the City Council. This evasion was
apparently so widespread it was regarded as 'evidence of commercial
astuteness' rather than as a breach of 'commercial morality' among the
shipowners and merchants of Darling Harbour and Sussex Street.12 In
turn, the City Council were hesitant to invest in the harbour. In addition,
shipping companies had to bear some responsibility for the outbreak of
the plague. As the size of ships increased they found it necessary to
dredge the berths ever deeper to accommodate the ships. When this
dredging was carried out, the sea wall tended to subside, and collapse

9 Norman Selfe, 'The Quays, Wharves, and Shipping of Port Jackson, past, present ,
and prospective,' Engineers Association of New South Wales, vol. xxiii, 1908.
10 NSWPD, 15 Aug 1900, p. 1908.
11 See Dan Coward, Out of Sight, p.209.
12 Wilks (Balmain), NSWPD, 4 July 1900, p.666.
Royal Commission on Communication. —
Sydney and North Sydney. —

Diagram —
Showing the Tonnage of Shipping arrivals at —
Port Jackson —
In each Year from the Foundation of New South Wales until the end of 1887. Also the probable (per capita) increase by the Years 1910, 1935 and 1920 up to 9 Millions 12 Millions and 15 Millions of tons per annum.

NOTE: The Vertical lines represent intervals of Ten Years. The Horizontal " " " One Million tons.

Thus in less than 15 Years
The present Wharfage should be doubled.
into the harbour. This left cavities under the wharves where many of the rats accumulated.\textsuperscript{13} Although the shipping companies could not be blamed outright for the outbreak of the plague, the location of the outbreak highlighted some culpability on their part.

The Resumption of the Port 1900.

Since the resumption of the port was at least partially stimulated by the shipping companies, the area eventually proclaimed by the Governor on 3 May 1900 conformed to the distribution of the major port-using companies from Dawes Point across to Miller's Point, and down much of the length of Kent Street as far as Pyrmont Bridge. It included Sussex Street, perhaps the most congested street in the area, and the site of much of the plague in Sydney.

A significant omission was that of the land belonging to the Australian Gaslight Company off Kent Street. The AGC was not a shipping company and it did not possess wharves which needed to be reconstructed. The Government therefore decided not to resume the area. The AGC had also apparently persuaded the Government that it intended to move the works elsewhere in the near future, and the resumption of the works would therefore be considerably cheaper if the Government decided to buy the property later.\textsuperscript{14}

Not everybody was convinced by these arguments. The omission was severely criticised when the \textit{Darling Harbour Wharves Resumption Bill} (64 Vic. No. 10), to 'validate' the quarantine and the resumptions that had been already carried out, was introduced to the Legislative Assembly. Although George Reid, the leader of the opposition assured Lyne that there could be 'no contest about the main principle' of the bill for resumption,\textsuperscript{15} he pressed for the resumption of the AGC's premises. According to George Reid, the Gas Company would have become a valuable tenant of the Government if their premises had been resumed. The rental on the property, he estimated, would cover the cost of resumption within two years.\textsuperscript{16} From the point of view of the state, there was simply no justification for the omission:

\begin{footnotes}
\item[\textsuperscript{13}] H.D. Walsh, 'Notes on Wharf Construction, Sydney Harbour', \textit{ibid}, p. xii.
\item[\textsuperscript{14}] \textit{NSWPD}, 28 June 1900, p.545.
\item[\textsuperscript{15}] \textit{NSWPD}, 15 Aug 1900, p.1915.
\item[\textsuperscript{16}] \textit{NSWPD}, 5 July 1900, p.695.
\end{footnotes}
To tell us that the Gas Company would not go down on its knees to the Government to get a lease of this place is to say a thing no business man in Sydney would regard for an instant.17

The Company was in fact tied to the site for years to come, according to Reid, and it could leave only at an enormous loss. Reid's judgement on the question appears to be correct as the company did not move from Darling Harbour for some time. The Trust consistently pressed for its removal but it was not until 1912 that the Government finally resumed the site, at a cost of half a million pounds, and only then did the Company begin to move from the site.18

Another aspect of the *Darling Harbour Resumption Bill* to cause concern was the inclusion of the area known as the 'Rocks'. This area lay between Sydney Cove and Darling Harbour. It was one of the earliest places to be settled in Sydney and its lay-out was somewhat disorderly. Lyne had decided to include the area after making his first visit there in connection with the bill. He was appalled by what he saw in the area:

> It is a place—practically in the heart of the city—which is really a disgrace to any city in the world. There are narrow lanes and crooked lanes, and until you get up near Fort-street, there is no thoroughfare which you can call a street.19

It was an expensive gesture, however. At a cost of £800,000, the resumption of this area consumed one fifth of the budget allocated to the resumptions as a whole, and on the face of it, the resumption had little to do with the need for shipping facilities. The Government argued that one reason for the resumption of the 'Rocks' was to prevent the unjustifiable increase in the value of property as a result of the work of the new Harbour Trust.20 It was commonly held that the 'Rocks' was a slum area, and that much of the property there was worthless. Many of the landlords were deemed to be negligent and Lyne argued that resumption would ensure that they did not profit unfairly from the work of the Trust.21

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19 *NSWPD*, 28 June 1900, p 546.
20 *NSWPD*, 28 June 1900, p.547-8. Parts of Sussex Street could also be resumed without compensation.
21 *NSWPD*, 5 July 1900, p.765.
Darling Harbour Resumptions: Plans showing the Proclaimed areas.
Daily Telegraph, 4 May 1900.
Not all members were convinced by these arguments. R.D. Meagher told the Government that he would not 'support any attempt to improve that healthy locality in Sydney called "The Rocks". His view of the area was supported by another member, J.C. Watson. Although Watson admitted that the area was 'unsightly and inconvenient', he claimed:

[It] was not insanitary—at least a great portion of it was not. A few of the lanes were dirty, more particularly on account of the laxity of the authorities in allowing people of all colours, castes and creeds to live there in the way they did; but "The Rocks" was not insanitary because of the location of the houses or the lack of drainage. Whatever insanitary conditions prevailed there were preventable. Therefore "The Rocks" was not on the same plane as ill-kept wharfage, which on account of its construction it was impossible to improve, and for the resumption was the only remedy.

There were some people, however, who insisted that the 'Rocks' was indeed a slum of the worst kind, including William Morris Hughes, Labour member for Lang. Hughes had recently emerged as the most powerful political leader in the area, as head of the newly organised Wharf Labourers Union, and of the union representing carters and draymen. Hughes exploited the popular perception of the 'Rocks' to launch a devastating attack on the City Council. In a debate on the municipal franchise, he appeared to suggest that the City Council was largely to blame for the plague because of the poor state of the area. He called for the abolition of the Council immediately. It was not a workable system, he believed, and while not all the councillors could be blamed for the state of this local government, they were powerless to effect real change:

I have been, in the heart of Sydney, up to my knees in abominable filth in premises which are owned, or at least partly owned, by the municipal council, not the council as a whole, but by members of it. I have been in places where the floor was up, and where the stench was such that, standing upon the joists upon which the floor has rested, it was impossible to remain .... About five steps from the back door of a place in Steam-Mill Street I came to an outhouse which was in such a condition that the inspector kindly indicated to me in which corner typhoid lay and in which corner diphtheria, for any person inclined that way, might be able

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23 NSWPD, 5 July 1900, p.762.
24 Fitzhardinge, William Morris Hughes, Vol 1, 1862-1914, Sydney, p.108.
25 A bill to abolish multiple voting had been introduced in the Legislative Assembly in June and it reached its second reading on the 26 June. What provoked its introduction was the supposed negligence of the City Council and its responsibility for the plague itself. NSWPD, 26 June 1900, p.408-9.
Harbour Resumptions: The areas dealt with.

Daily Telegraph, 11 July 1900.

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to pick it up. That was within five steps of the back door of a house partly owned by these aldermen.26

Members of the Legislative Assembly were adamant that the waterfront should always remain a state concern and never be returned to the local council. When Reid raised the possibility that the rebuilt 'Rocks' could be handed back to a 'reformed' City Council, or a Greater Sydney, the form of which was in public debate at the time, many members feared that the wharves would be handed over as well. John Haynes (Wellington) made it clear that he would support the bill:

... on condition that they see that the whole of the management of the wharves becomes a state concern, and is not relegated to Greater Sydney as suggested by the leader of the opposition 27

At this point in the debate, a distinction is made between the resumption of the wharves as a state interest and the resumption of the 'Rocks' as an *ad hoc* concession by the state to the city. Reid replied to Haynes that he was referring only to the area known as the 'Rocks'. He did not believe that the port should be handed over to the local authorities, as the port was a matter for the state as a whole. Haynes accepted this, and agreed that the 'Rocks' should indeed be handed back to the Sydney Corporation, leaving the port to the state. These are crucial concessions as they underline the overriding authority of the state in the urban structure. The problem facing the state, in the form of the parliamentarians and the Government, was to delineate those features of the urban structure which were of specific interest to the state.

The attack on the City Council was misplaced. The trend of legislation had left that body highly vulnerable and relatively powerless. Successive governments had removed powers from the City Council from the 1870's. In 1873, it lost the power to license public vehicles, the powers of water supply and drainage in 1888, and the powers of fire prevention in 1884.28 What is most significant is that the decision of each government to remove powers from the City Council was not based on its negligence in exercising these powers, but rather in the successful use of them. The powers of water supply were taken away only after the Sydney City

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27 NSWPD, 28 June 1900, p.552.
water supply system began to be successfully installed in the suburbs. The City Council pioneered the licensing of public vehicles and it was only after the necessity for a similar system elsewhere in Sydney became obvious that the Government created an *ad hoc* board to control licensing. These bodies had been created to pursue their own concerns and it could only be expected that in a time of crisis their response would be self-interested. At the height of the plague in 1900-01, the authorities responsible for sanitation, the City Council, the Health Board and the Water and Sewerage Board were accused of looking on impotently, 'each one blaming the other two for its inaction'. The negligence of the City Council was in fact a reflection of the confusion caused by a rearrangement of powers within Sydney by the state in the late nineteenth century. The establishment of the Trust was at least a decisive move on the part of the state to assign responsibility, and the necessary powers, to some form of authority capable of controlling the port. The City Council never had these powers.

**The establishment of the Sydney Harbour Trust 1900-01.**

Since the opposition were in agreement with the Government on the need for the Harbour Trust, the bill was given an easy, though lively passage through the House. Reid's major quibble was the decision to place both the functions of construction and of harbour maintenance under the same authority. Reid had been led to believe that not only was there to have been a Harbour Trust, but also a board responsible for the construction of the 'great works' as a consequence of the resumptions. The Government replied that the Trust was to deal only with the area surrounding the harbour, where the bulk of the resumptions had taken place. For those resumptions not directly connected with the harbour, a general 'improvement board' would assume responsibility.

The *Sydney Harbour Trust Act* 1900(64 Vic. No. 30) envisaged a commission of seven, to be appointed by the Governor, who were to remain in office for seven years. Four of the Commissioners would represent the Government, leaving three to vouch for shipping interests. In this, the Harbour Trust differed from many other harbour authorities, such as those in England, where the shipping interests predominated. The

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29 *Daily Telegraph*, 12 Dec 1901, Sydney City Council Library Newscuttings.
reason for this difference was the degree of state involvement in the Sydney Harbour Trust. The millions of pounds expected to be spent by the Trust was provided largely by the state. In Britain, most of the harbour boards were local bodies, responsible for the raising and expenditure of their own funds. A somewhat similar situation operated in Melbourne where the 17 Commissioners of the Harbour Trust relied upon their powers to borrow money and upon money contributed by trade interests in the port. The Sydney Harbour Trust was not given the power to borrow money and its resources were derived from state revenue.

Over the next few months, the constitution of the Harbour Trust was moulded by parliamentary debate. The number of commissioners was reduced from seven to three. This followed the precedent set by an enquiry into the Metropolitan Water and Sewerage Board. The enquiry into the operation of this body recommended that its board of seven part-time officers should be reduced to three, including a full-time president. It had been found that a seven member board was superfluous. It was suggested that the seven part-time members of the board should be replaced by a full-time officer and two part-time officers. This reform was not carried out but it was at least possible to avoid the same superfluity in the case of the Harbour Trust and the number of commissioners was duly reserved to three officers. The commissioners of the Trust were to be appointed by the Governor, rather than by the Government, or the Public Service Board. These commissioners were given almost entirely autonomous powers in relation to the staffing of the Trust. They were not bound by the recommendations of the Public Service Board.

The bill was finally passed in October 1900, and towards the end of February 1901 the three commissioners were appointed. They were Thomas Francis Waller, Lachlan Beaton and Robert Hickson. As manager of the Howard Smith shipping line in Sydney and Melbourne, Beaton clearly represented shipping interests. Waller, an agent for a stock and station company, was a more prominent public figure. Based in Sydney, Waller had previously sat on two royal commissions; in 1897 for an enquiry into the Department of Public Works, and 1889 for an enquiry

31 W.V Aird, The Water Supply, Sewerage and Drainage of Sydney, Sydney, 1961, p.218. The President was made a permanent position in 1889 as a result of a Royal Commission in 1897 to enquire into the operation of the board.

into casual labour.\textsuperscript{33} Robert Rowan Purdon Hickson, President of the Harbour Trust was undoubtedly the major force behind the new authority. An obvious choice for the position, Hickson had been for much of the previous year the chairman of an advisory board on the resumptions, having been the administrative head of the Department of Public Works since 1896.

Hickson was particularly suited to his new position since much of his early training and experience in engineering was in harbour maintenance. Trained in Ireland, Hickson was appointed at a relatively young age to the post of resident engineer and Harbour Master at Carlingford in the north. From there, he moved to England where he was made Harbour Engineer at Barrow-in-Furness. When Hickson arrived in Australia in 1876, he was amply qualified to work on harbours and their construction, firstly in South Australia and then in Newcastle. He entered the public service as Engineer-in-Chief for Public Works in New South Wales in 1895, responsible for all the major works in the state with the exception of the railways and tramways. The following year saw him elevated to the post of Under-Secretary for Public Works after J. Barling, the previous Under-Secretary, was moved to the new Public Service Board.\textsuperscript{34}

Hickson was probably a considerable influence behind the appointment of Henry Deane Walsh as Engineer-in-Chief of the Trust fairly soon after its formation. Like Hickson, Walsh had been trained in Ireland where he worked for the Great Southern and Western Railway Company before emigrating to New South Wales in 1877. The following year, he entered the Public Works Department where he worked under Hickson after 1895.\textsuperscript{35} Together, Waller, Hickson and Walsh made up a triumvirate of Irishmen drawn from similar middle-class protestant backgrounds. Indeed, Waller and Hickson attended the same school in Dublin, while both Waller and Walsh graduated from Trinity College Dublin.\textsuperscript{36} It is difficult to be conclusive about the implications of this grouping of men from similar backgrounds, but one can surmise that their shared origins probably gave them an understanding of each other's personalities.

\begin{itemize}
  \item \textsuperscript{33} \textit{Ibid}, Vol. 2, L-Z., p.325.
  \item \textsuperscript{34} \textit{Sydney Harbour Trust Officers Journal}, Sydney, Aug 1925.
  \item \textsuperscript{35} \textit{Ibid}.
  \item \textsuperscript{36} \textit{Robert Rowan Purdon Hickson}, Australian Dictionary of Biography, Vol.4, 1851-1890, D-J, MUP, p.389; \textit{Thomas Francis Waller}, Gibney and Smith, Biographical Register, Vol 1. It is quite possible that Hickson and Waller knew of each other since their school-going days as the age difference was slight. Waller was born in 1844, whereas Hickson was born in 1842.
\end{itemize}
The Reconstruction of Sydney Port 1901-12.

The Sydney Harbour Trust lost little time in setting about a reform and renovation of the port of Sydney. The area it controlled was enormous, covering a foreshore some 200 miles in length.\(^37\) The Trust was expected not merely to reconstruct much of the port, but to operate it for public and commercial use. An idea of the task confronting it can be seen with Sydney Cove. It was suggested that all overseas vessels ought to be removed from the Cove as the congestion was potentially dangerous. However, Mail steamers could not be removed as there was not enough room for them elsewhere. Instead, the Commissioners decided to tighten up the regulations controlling traffic in the Cove. The speed limit was reduced, the types of vessels which could operate in the Cove and the hours in which the steamers and ferries could use the Cove were regulated. Rental for the berths was collected assiduously.

Much of the facilities at Sydney Cove was reconstructed. On the eastern side of the quay, the Orient Pacific Company had its shed accommodation extended 50 feet to the south. Its wharf was redecked and the floor of the wharf resheathed. A new wharf on the western side of the Cove was constructed for the Nord-Deutscher Lloyd line. It eventually measured 1000 feet in length, and 40 feet in width. Two large sheds, 300 feet in length, were constructed on top of the wharf. The extension left little room for the steamers of the German-Australian Company located beside it. Consequently, their steamers were removed from the cove and brought to Woolloomooloo Bay to be berthed. Other ships removed from the Cove included the White Star steamers. They were too large to be allowed to continue to berth at the southern wharf at the western corner of the Cove. Instead, it was arranged with the owners, Dalgety and Company, to build a new wharf at Miller's Point, 1100 feet long, forty feet wide, with four sheds, each of them 220 feet in length. The Trust agreed to build a huge wool store, 287 feet long, one 132 feet wide and seven storeys high, facing the wharf. This was among the first major works undertaken by the Harbour Trust as it was hoped to remove the steamers from the Cove by September 1902.\(^38\) The plan was somewhat optimistic as the first


The steamer to be berthed at the new wharf, the s.s. *Militades*, was not able to do so until December 1903. By the end of June 1902, however, 700 feet of the wharf had been erected, and 1000 feet by September 1903. By 1904, the sheds had been completed as were offices and waiting rooms for the passengers.

At Darling Harbour, the Commissioners took over many works of reconstruction already begun or planned by the Department of Public Works, and then a Darling Harbour Resumptions Advisory Board set up in 1900. A new jetty for Huddart Parker and Company had already been completed, but the Commissioners had this extended by another 50 feet. Extensive renovations were made to the sheds of the Howard Smith Company and new sheds and wharves had already been constructed by the Advisory Board before the advent of the Sydney Harbour Trust. The Commissioners sanctioned repairs to a total of fifty four wharves in their first year of office.

By far the largest project undertaken before the establishment of the Trust was the reconstruction of Darling Island. This work was started in 1897 by the Public Works Department and was then continued by the Advisory Board. It involved the construction of concrete wharves, the eastern one being 1300 feet in length, and the western, completed by the Harbour Trust, some 930 feet. The total cost of the work was in the range of £450,000 and was completed by the Harbour Trust early in 1902. For four months of the year, the eastern side of the island was wholly taken up with handling wheat. This product was not liable to normal harbour dues and there was little financial return on these works. It was arranged with the Railway Commissioners, therefore, to use the sheds and facilities for other produce during the year. This was still not enough. A boom in the wheat trade in the years that followed compelled the Commissioners to sanction the construction of a new wharf at Pyrmont Bay in 1906. This new grain jetty eventually measured 1000 feet in length and included a grain shed and three lines of rails given by the Railway Commissioners.

An additional responsibility of the Harbour Trust was the construction of sea walls to prevent rats from climbing onto land. As mentioned, most of the sea walls in Sydney Harbour consisted of timber piles driven into

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40 *Ibid*, First Report, p.17
the sea bed. Henry Deane Walsh noted that the 'rough' face of the walls constructed in this way allowed the rats to climb the sea wall, and often to penetrate it. In order to prevent the rats from using the timber piles to find an access to dry land, Walsh had to find some means of constructing a sea wall with a flat surface. The most obvious way to devise a flat sea wall was to remove the timber piles and build a new sea wall of concrete. Concrete sea walls were being constructed in many parts of the world, especially in Europe, where they had been more or less accepted as standard practice.

Walsh, however, had reservations about the use of concrete in the harbour. At £32 per lineal foot, it was so expensive that he believed that it was impossible to construct a sea wall entirely of concrete. Instead, he decided to make use of the newly introduced 'Monier System' to provide a flat wall. The system had been invented in Europe in the 1880's and was in use there since then. It involved the combination of cement mortar and iron which resulted in a highly durable material, which was also easy to handle and model. Monier 'plates' could be made on the spot to whatever shape was required of them. Walsh designed the plates to hang over the timber sea walls in sheets which ranged in length from 9 feet to 12 feet 6 inches. This way Walsh succeeded in crating a flat sea wall to prevent the rats from climbing up onto dry land. The plates were also long enough to prevent rats from climbing in under the wharves in low tide. Monier plates were also hung along the wharves for the same purpose.

Walsh's suspicion of concrete wharves was partly based on his view that the technology was not yet sufficiently advanced to be trustworthy. Reinforced concrete was now used commonly in Europe in particular, and America was following this lead. It had also been used for wharf construction in New Zealand and in Brisbane and Adelaide. It was notable, however, that much of these works was carried out to a 'pile and deck' design, an imitation of the traditional timber design. This suggested to Walsh that the material and technology was not yet properly understood.

In any case, the use of concrete in Europe was largely stimulated by the high cost of timber in Europe. In Australia, timber was available in large quantities and at reasonable cost. This was true also of New York.

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where timber was extensively used. Furthermore, Walsh was especially impressed with the durability of the unsheathed turpentine in the old wharves. When Smith's wharf, at Miller's Point was being dismantled, he found that 80 per cent of the piles were still in good shape after 30 years of service. For as long as timber was available at reasonable cost, he saw no reason to change to concrete, and consequently most of the new wharves and jetties constructed during the first decade of the Trust were, in fact, of timber. He warned in 1910, however, that unless 'drastic action' was taken in connection with re-afforestation and exports, timber might run out of supply. The volume of timber used in the Sydney Harbour wharves is staggering. In 1909 alone, over 4000 acres of forests had been denuded to provide ironbark and turpentine for the works carried out by the Trust.44

A significant legacy of the Harbour Trust was the laying of a new road that stretched from Circular Quay, to Darling Harbour via Dawes and Miller's Points, known as Hickson Road. Consequently traffic in George Street and the city centre had an easy access to the wharves between Miller's Point and Dawes Point, in what became known as Walsh Bay, and Darling Harbour. At one stage it was contemplated to continue this road along the harbour line as far as Glebe Island. Before the construction of Hickson Road, it was difficult to reach Dawes Point from Circular Quay, and Miller's Point was blocked by a conglomeration of small streets and alleyways. In order to improve access to Dawes Point, and the area immediately behind it, the choice lay between widening and levelling Cumberland Street so that it could be connected with Sussex Street, or for the area between Dawes Point and Miller's Point to be cleared so that a major road could be laid to connect them.45 As noted earlier, the second option was chosen. Both options, however, involved the resumption and remodelling of streets and buildings in the 'Rocks', and the control of the 'Rocks' was therefore essential to the Trust. Furthermore, it was essential that the AGC's lands were also controlled by the Trust so that Hickson Road could be brought down the length of Darling Harbour into a newly widened Sussex Street.

Another major task of the Trust was the demolition of the wharves from the Gas Works up to Miller's Point and across to Dawes Point. These

45 W.J. Spruson (Sydney-Gipps), Samuel Smith (Sydney-Pyrmont), NSWPD, 5 July, p.762-764.
obsolete wharves would be replaced by new wharves with access to the new roadway. The wharves stretching from the Gas Works up to the new Dalgety's wharf would be approached by a widened Argyle Street, and would have double-decked sheds, with the upper decks connected with a high level roadway running from Argyle Street, parallel to Kent Street. The new jetties running from Miller's Point to Dawes Point, on the other hand, would need only single-decked sheds since they had immediate access to Circular Quay through the proposed new roadway. When they were completed in 1922, however, they each had a concrete bridge, built on the Monier principle, running over Hickson Road onto the street above it.

The work of the Trust along the foreshores in its first few years of existence was indeed impressive. In June 1906 the Commissioners reported that they had erected sixty three buildings, altered twenty and demolished one hundred and thirty nine. It had erected twenty one wharves, altered eleven and had twelve demolished. Over seven thousand feet of new berthing space was provided, four thousand feet of rat-proof wall laid down and three thousand feet of new streets opened.46 Hickson proudly reported in 1908:

Today the Port stands out as the first south of the Equator in clean lines; in the accommodation it affords to the magnificent fleets which enter the Heads; in the aids to navigation; and in the moderate charges made for the services rendered.... The Commissioners have practically remodeled the whole of the wharves.... Many streets have been improved and widened....47

There was nothing particularly revolutionary about these plans. According to the Daily Telegraph, the Commissioners were 'sober minded' men. They did 'not pretend to have any far reaching premeditated plan of reconstruction',48 but sought instead to introduce changes piecemeal. If the scale of the works appeared monumental, it was the monumentality of bureaucratic and technical expertise, rather than human vanity.

The Institute of Architects of N.S.W. found little to criticise when they were brought on a sea-borne tour of the port in 1913. The architects witnessed the construction of the enormous new Woolloomooloo wharf, built on piers of turpentine timber protected by Monier 'cylinders'.

47 Robert Hickson, 'First President of the Sydney Harbour Trust', Journal of the Port of Sydney, Vol x, p.242.
48 DT, 8 Jan 1902.
wharf eventually measured 1115 feet in length and two hundred and 8 feet in width. It was planned to have a roadway 53 feet wide run up the centre of the wharf, with double-decked stores on either side. The whole wharf would then be covered with a concrete floor. From there, they were taken to see the new reinforced concrete wharves of Dawes Point, where the Trust had built rooms and offices for the large steamers. The editor of the journal of the institute thought the architects and engineers of the Trust were to be:

... congratulated on the splendid scheme they had laid down to make Darling Harbour one of the finest in wharf accommodation for shipping in the world. There will be a beautiful broad road right round this great basin, in close proximity to Sussex-street and all the business streets and centres of Sydney. From Dawes' Point we inspected all the wharves and stores right round to Miller's wharf and Dalgety's wharf, at which stores are built of brick and stone, in excellent design.49

The Sydney Harbour Trust and the City.

How far the work of the Commissioners fitted into an overall plan for the city is difficult to discern. Certainly, Hickson, in his previous capacity as Under-Secretary in the Department of Public Works would have been aware of the need for integrated development, and his later experience as Commissioner for the enquiries into city improvement and the city railways would have complemented this awareness. Nonetheless, the Harbour Trust held no brief for the planning of the city except in so far as it directly affected the work of the Trust. When Hickson gave evidence to the 1909 Improvement Commission as the President of the Trust, it was primarily to draw attention to the desire of the Trust to remove the Gas Works.50 It was hoped to erect three jetties there, each four hundred feet long. More importantly, the Gas Works obstructed the construction of the low-level road from Dawes Point to connect up with Sussex Street. It was 'absolutely necessary', Hickson believed:

... that the wharfs that I have described between Miller's Point and Dawes' Point, and Miller's Point and the Gas Works, should have communication with the city, and, if we could not get the site of the Gas Works, there would be no alternative but to take a tunnel round under Kent-street and back again into Sussex-street, and so miss the Gas Works. The cost of that would be about £160,000, and we would get no return from it whatsoever;

it would be dead money. If the Gas Works were resumed we would get 720 feet of valuable frontage.51

The success of the new road depended on its value as a through road from the city, meaning the Circular Quay area, and George Street, around to Darling Harbour and its business and trading communities. The continued presence of the Gas Works, however, meant that this idea was impossible to carry out. Another advantage of the scheme was that it would relieve Sussex Street of much of the traffic that had no business there. Traffic heading southwards in the direction of Redfern, and which would normally take the tortuous route through the congested Sussex Street, would be diverted by a newly widened Napoleon Street up onto Kent Street and removing from Sussex Street up to fifty per cent of its present traffic.

This is not to say that the Harbour Trust paid no attention to the needs of structural developments other than their own. According to Hickson, the newly-constructed wharves had been made so that they would not interfere with a bridge to the North Shore. The tunnel under Windmill Street being constructed for the new road had a width of seventy nine feet, purposely to allow for two railway lines. Yet even in this case it must be noted that the construction of railway lines along the new road would necessitate the resumption of the Gas Works, a fact which the the Harbour Trust were keen to highlight. As Hickson told the Improvement Commission:

The Commissioners are watching with great interest the proceedings of the City Improvement Committee, and they desire to express the hope not only that the construction of a railway along these water frontages will be one of the recommendations of the Committee, but that such recommendation will reach fruition in the near future.52

The Harbour Trust may well have had misgivings about the need for a railway. Walsh, was specifically opposed to much of the railway scheme. When asked if he proposed a railway along the eastern side of Darling Harbour, he replied that he did not think it would be of much use.53 Furthermore, if a line was placed from the head of the harbour up to the

51 Ibid.
52 Ibid.
53 Ibid, p.52.
Gas Works, it would be a 'positive disadvantage'. The chief companies along that strip of the harbour:

... trade along the coast to bring food to the people of Sydney. Not an ounce of that trade would be put on a railway line if it were there tomorrow. The same remark applies to Jones Brothers and all the coal companies. I am informed by the A.U.S.N. Company, the Melbourne Company, and the Union Company, that they would not ship if they had a railway there. Their trade is of such a nature that they do not want railway facilities.\(^5^4\)

There was a case for a railway line at the northern end of the harbour, Walsh conceded, but even in this case, he believed that the railway line need only be extended as far as the Gas Works and then around to Dawes Point and eventually to Circular Quay.

His evidence was completely at odds with the evidence of Henry Deane, who was now a private engineering consultant after leaving the DPW in 1906. When Deane was recalled after Walsh had left the stand, he was adamant that a railway should be connected with the southern end of Darling Harbour, that is, below the Gas Works.\(^5^5\) He believed this railway ought to be linked with the new deepwater wharves that the Harbour Trust intended to build between Miller's Point and Dawes Point. He did not see any necessity for the goods railway to be connected with Circular Quay.

Confronted with these conflicting views, the Improvement Commissioners opted for a compromise. Their report did not oppose the construction of the railway 'assuming that our recommendation to resume the Gas Company's works be adopted'.\(^5^6\) It was a vague recommendation, nevertheless, which stressed that the railway could be built 'when the needs of traffic demand it'. The vagueness of the proposal suggests that the demand did not exist. It seems likely that a deciding factor in the support of the Harbour Trust for the Darling Harbour goods railway was the knowledge that the Railway Commissioners were anxious to have the line built. In his evidence to the Improvement Commission, the Chief Commissioner of the railways, Thomas Johnson, outlined the plans for a new goods line, diverted from Redfern, running into Glebe Island, where most of the export cargoes would be unloaded, then on to Darling Island to deal with coal and wheat, and after continuing to the head of Darling

\(^5^4\) Ibid.
\(^5^5\) Ibid, p.55.
\(^5^6\) Ibid, p.xxxv.
Harbour where it would finally terminate in the area of the Gas Works.\textsuperscript{57} The Harbour Trust was no doubt aware of these plans before Johnson revealed them to the Improvement Commission. The fact that both bodies of commissioners awaited the resumption of the Gas Works added to the case for resumption. The original assurance of Lyne that the Gas Works was not an impediment to any prospective railway was now irrelevant as the pressure mounted on the Government to resume the site.\textsuperscript{58} The interim report of the Improvement Commission dealt entirely with the matter, and unanimously recommended that the site be resumed without delay, whether or not the railway went ahead.\textsuperscript{59}

It is difficult to say if there was a conspiracy on the part of both sets of Commissioners to press for the resumption of the Gas Works. The two bodies certainly cooperated with each other from time to time. In May 1901, the Harbour Trust made known their support of the proposals of the Railway Commissioners to have the Government vote £100,000 to the Department of Agriculture in order to increase facilities for the handling of agricultural produce at Darling Island.\textsuperscript{60} The major facilities under consideration were wheat sheds, which would normally only be used for four months of the year, during the wheat export season. The two sets of commissioners agreed to have them used for other purposes for the rest of the year. The development of Glebe Island appears to have been largely inspired by the Railway Commissioners rather than by the Harbour Trust, although the latter were the rightful occupiers of the area.\textsuperscript{61} The later construction of new jetties, railway and tram lines in this area reflected the value to the railways of the coal trade, which had been previously carried out at the Pyrmont Bay/Darling Island complex, alongside the wheat cargoes.

\textsuperscript{57} Ibid, p.4-6. See plan No.16.
\textsuperscript{58} NSWPD, 5 July 1900, 728. Lyne stated that such was the contour of the land, a railway would need to go by tunnel through the area.
\textsuperscript{59} Interim Report, Royal Commission for the Improvement of Sydney, xviii.
\textsuperscript{60} Sydney Harbour Trust Commissioners’ First Report, p.18.
\textsuperscript{61} Royal Commission for the Improvement of Sydney, Henry Deane Walsh, 1393, p.54. A Parliamentary Standing Committee on Public Works in 1910 produced a report on the proposals of the Railway Commissioners to lay out a goods railway from Flemington to Glebe Island. It was proposed to continue the line by bridge over Johnstones Bay to Pyrmont and do away with the need to carry livestock in the city by the main suburban line. As it happened, the final scheme went behind Blackwattle and on to Darling Harbour. It was extended to Glebe Island which was then developed from 1912. See P.R. Proudfoot unpublished PhD thesis, UNSW, The Port of Sydney as it has Engendered City Growth and Urban Construction, (1973) Vol 1. p.61-62.
At the outset, some of the parliamentarians were unsure of the eventual outcome of the relationship between the Trust and the Railway Commissioners. The representative of the Gipps division, W.J. Spruson, took a gloomy view of the combined interests of the Harbour Trust and the Railway Commissioners in Pyrmont Bay.\(^{62}\) Both these bodies had virtually unlimited authority over this area and, he believed, there was no means of settling differences if the interests were in conflict. Lyne replied that the Minister was the ultimate arbitrator of the interests of the two sets of commissioners.\(^{63}\) Indeed, Lyne could have gone further and asserted the right of the Government to override the interests of either authority if it so wished. As he pointed out, the Harbour Trust commissioners had 'no power to interfere with the Government in carrying out a railway in any direction they like.' He speculated, in any case, that in the event of a North Shore bridge 'a railway in that connection will probably run down the eastern side of Darling Harbour'.\(^{64}\)

Lyne did not, however, consider his government to be responsible for the preparation of that contingency. The site of the Fresh Food and Ice Company, at the head of the harbour in the southeastern corner was not resumed by the Government in Darling Harbour in 1900. Lyne admitted that he had been pressed to include this area in the bill but had not done so for two main reasons. Firstly, heavy costs were involved, as the area was valued at £160,000. Secondly, he considered it 'had more to do with an extension of the railway than with anything else'.\(^{65}\) His view on this was understandable, but the decision meant that it was impossible to bring a goods line from Pyrmont Bay or Darling Island around to the other side of the harbour because of the acute angle at the head of the harbour. More than one politician raised the matter. When discussing the *Darling Harbour Wharves Resumption Bill*, James Gormly (Wagga Wagga) did not consider the bill 'suitable' unless provisions were made for the railway, including 'extensive reclamations of the shallow water'.\(^{66}\) After looking at the plans showing the resumed lands, Thomas Waddell (Cowra) also suggested resuming more land at the head of the harbour as there was 'scarcely sufficient room to allow of the connection of the railway

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\(^{62}\) *NSWPD*, W.J. Spruson, 5 Aug 1900, p.1924.

\(^{63}\) *Ibid*.

\(^{64}\) *NSWPD*, W. Lyne, 15 Aug 1900, 1946.

\(^{65}\) *Ibid*, p.768.

systems on either side. When Spruson suggested an amendment to the bill extending the resumed area to include an area of land around the head of the harbour, he was given a sympathetic, although ultimately negative, response. Spruson was supported by another representative for the area, Samuel Smith, who warned against the failure to resume the head of the harbour. Smith told the Legislative Assembly that unless the head of the harbour was resumed now, a future government might have to resume land up to George Street and Hay Street if they ever wanted to construct a railway extension to the eastern side of the harbour. To refuse to entertain the proposal to resume land at the head of the harbour, he claimed, and to spend another £300,000, was like 'straining at a gnat and swallowing a camel'.

The Administration of the 'Rocks' 1901-1911.

Finally, it is necessary to deal with a less fortunate and more complicated feature of the work of the Harbour Trust—the remodelling of the 'Rocks'. When the Sydney Harbour Trust Act was passed in February 1901, the area that the Trust controlled contained very few dwelling houses, hotels or what could be termed residential property. Included in it were 32 shops, five hotels and 29 houses. The bulk of the area known as the 'Rocks', most of which had been resumed, was placed under the jurisdiction of the City Improvement Advisory Board, consisting of Varney Parkes, MLA for Canterbury, George Barlow, President of the Institute of Architects, J.R. Carey, and George McCredie, an architect and consulting engineer who had been contracted to organise the quarantine of the area in 1900. However, since the Trust reasoned that its work could not possibly be carried out unless it was able to remodel the area in line with the reconstruction of the harbour, the Government agreed to hand over the area to the Harbour Trust in June 1901, against the wishes of the City Improvement Board. The 'Rocks' consisted of 401 houses, 82 shops, 23 hotels, 70 bonds and stores, as well as 45 factories, workshops and offices, bringing a total of 803 separate properties of this sort under the control of the Trust. It was a major responsibility for the Trust

68 Ibid, 5 July 1900, p.767.
69 Ibid.
70 The Sydney Harbour Trust Commissioners' First Report, 1902, p.28.
71 Ibid.
which now assumed the role of residential landlord as well as that of port administrator and construction authority.

Immediately upon obtaining the properties, the Trust condemned 71, of which 40 were houses in Day Street, and 14 in Clyde Street. It considered that 35 per cent of the property was in 'bad repair', and up to December 1901, just six months after the Trust were placed in charge, repairs and alterations were carried out on 364 houses, 33 stores, and 21 hotels.

The City Improvement Advisory Board had already drawn up a remodelling scheme by the end of 1901. It proposed regrading several streets and widening George, Harrington and Cumberland Streets. Furthermore, it suggested that a railway line could be carried along Princes Street at an elevation of 25 feet in anticipation of a North Shore bridge over the harbour. By far the most significant feature of their scheme was the proposal to build two or three huge tenement blocks 'on a scale more elaborate and complete than has perhaps been attempted in any other part of the world'. The principal tenement block to be proposed was bounded by Windmill, Fort, Argyle and Kent Streets. The frontage of the Windmill Street side would measure 705 feet, that of the Kent Street side, 249 feet, and Lower Fort Street, 225 feet. It was estimated that this enormous building would house 700 families, or possibly 4000 people. The building was to be served by lifts and electricity. The tenements ranged from two to five rooms, each with a bathroom, and the top rate of rent was struck at 12/6 per week.

The cost of the scheme, at half a million pounds, was prohibitive to the incoming Commissioners. A new committee consisting of Hickson, Walter Vernon, the Government Architect, and Joseph Davis, Under-Secretary to the Department of Public Works, shelved the plans in favour of a far more modest scheme estimated to cost £60,000, which utilised the existing streets as far as possible. They decided nonetheless to go ahead with the construction of tenement blocks, in spite of the condemnation of the plans. A commonly held point of view was proclaimed by R.D. Meagher, who believed 'what was wanted was the essence of home life, and I think that a terrace house would tend to that ideal to a far greater degree than a tenement building...rapid and cheaper transit was more

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72 DT, 7 Jan 1902.
73 Ibid.
Re-modelling the Rocks:
*The Daily Telegraph*, 7 January 1902.
essential to the workers'. According to the *Sydney Morning Herald*, the tenement system was 'irresistibly associated with the barracks' in the minds of the working class. The *Evening News* charged Hickson and his colleagues with:

... a very slight acquaintance with the man they are attempting to cater for, if they do not know that he would prefer his own little cottage, with its "bit o' back yard" and its front verandah, to all the tenements with "all the most modern sanitary and other appliances" that ever were built. The cottage at least, is a home; the other never could by any possibility be made to resemble more than a mere human hive.

Almost alone in the world of labour politics, John D. Fitzgerald supported the plans, on the basis that there was a 'tendency in all parts of the world to keep the workmen close to their work'.

When a series of the tenement buildings were completed in early 1911 in Lower Fort Street, the public response was generally negative. The nine series of blocks, each three storeys high with a flat on each level appealed to very few:

The rooms are very small. In some cases too small to erect a double bed in, if any dressing room is required in addition. The light is bad. Although the general fittings are good, yet when one is told that the coal bins are inside the pantries underneath where the shelves for keeping food are fixed, an idea of the arrangements can be gleaned.

A deputation of the Labour Council of N.S.W. and of the Coal Lumpers Union was also less than impressed with the new tenements. One stevedore complained they drive 'men to the public house parlours...they destroy the family life...they strain the marriage-tie'. The new buildings of Munn Street were considered to be little better than 'kennels'.

The Trust was never entirely happy with the prospect of collecting rents from the four to five hundred tenants it inherited, but it felt matters were made more difficult by the tendency of many of the tenants to strain their new landlords to the utmost:

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74 *SMH*, 12 Feb 1902.
75 *Evening News*, 31 Jan 1902.
76 *SMH*, 12 Feb 1902.
77 *DT*, 15 Feb 1911.
It has been evident that a number of tenants of the resumed properties, having the Government for a landlord, had no intention of paying rental if they could help doing so.\textsuperscript{78}

The 'Rocks' became a battleground between the inhabitants of the area and the Government. In 1911, the Premier, James McGowen, felt compelled to inspect some of the properties as a result of the outcry over the new tenements, but also as a result of consistent complaints about the 'administration of the officers who had the management of the Government property, and transacted the business with the Government tenants'.\textsuperscript{79}

What exactly the administration was guilty of was never fully described, although the \textit{Sydney Morning Herald} suggested that 'the evidences of mismanagement in the administration of the area' had been made clear to the Premier. Certainly the conditions of many of the houses were appalling. McGowen had only to ascend to the first floor of Dyers' buildings, in Harrington Street, before he cried 'enough' to the delegation that accompanied him. The point had been made. 'Vile odours winded the stairway' according to the correspondent of the \textit{Daily Telegraph}. 'I'm getting a roasting', said the Premier, running in retreat from the women who pulled him every way to to get him to look the flats they were expected to live in.\textsuperscript{80} In May 1911, the management of the 'Rocks' was transferred to the newly formed Housing Board in the hope that it might be better managed in future. This was not the end of the matter, however, for later in the year the administration of the area was subject to a select committee of the Legislative Assembly as a result of continued allegations of maladministration.\textsuperscript{81}

Thus, the Sydney Harbour Trust proved itself to be more able as an administrator of the port of Sydney than as a residential landlord. The task of the Trust was to reconstruct the harbour to keep it in line with the recent changes in shipping technology, and for the expected growth in trade in the future. The takeover of the 'Rocks' was a purely technical matter to the Trust, but the control of the area inevitably led to its relegation to the greater concerns of the harbour reconstruction, including

\textsuperscript{78} \textit{Sydney Harbour Trust Commissioners' First Report}, 1902, p.28.
\textsuperscript{79} \textit{DT}, 14 Mar 1911.
\textsuperscript{80} \textit{SMH}, 16 Mar 1911; \textit{DT}, 14 Mar 1911.
\textsuperscript{81} \textit{NSWPD}, Vol 43, 14 Nov 1911, p.1660. The target of many of the accusations was the manager of the area, Mr F.F. Hall, who had been in charge when it was under the control of the Harbour Trust.
the creation of new roads. Furthermore the Trust contributed to an increase in the value of land and as a consequence made the cost of supporting residential life in the area more expensive. Although it attempted to compensate for the disruption by constructing large tenement dwellings, its housing policy was widely regarded as a failure. The policy was also weakened by the thrust of received opinion which pointed towards the suburbs as the future dwelling place for the working class.

The work of the Trust can be seen as part of a general process of urban construction set in motion by the state in the first quarter of the century. The process was partly owing to the outbreak of the plague, but it was rooted in the technological advances affecting the world, especially the shipping world, in the latter half of the nineteenth century. For this reason the reconstruction of the port dominated the early years of the Trust. The driving forces behind this were Robert Hickson, the President of the Trust, and Henry Deane Walsh. Both men were engineers who previously belonged to the Department of Public Works. Their appointment to the Trust is perhaps best understood as a transfer of men involved in one area of public works to another and they attest to the continuing interest of the state in the construction of the infrastructure of Sydney. This provides an additional reason for the reluctance of the Government to grant the powers of reconstruction to the local authorities. Since the Sydney Harbour Trust was in effect another arm of a public works programme, it had at all times to be under the control of the Government. The Government was not yet ready to hand over the control of 'public works' to local government as was the case in the United Kingdom at the time.82

On the other hand the Government did not think it wise to leave the DPW to the task of reconstruction. It could not do without some of its senior engineers, but it did not wish to involve the department as a whole. It is never stated why the Government did not entrust the DPW with the project, but the size of the department, and the numbers employed by it, were probably significant factors behind its decision. What the Government created was a new agency that had fairly clearly defined functions to do with Sydney Harbour, and it fulfilled those functions to the best of its ability. The Trust may be put into the context

of the creation of various *ad hoc* bodies to provide well-defined services in the metropolis. In this way, the state distanced itself from the day to day running of Sydney, but at the same time, eroded the powers of the municipal councils, in particular, those of the City Council, and it questioned the function of the DPW.

The Trust was eventually superseded by the statewide Maritime Services Board in 1935, which in effect represented the expansion of port facilities from Sydney out to other ports in New South Wales. The DPW may well have been the arm of the original colonial settlement of the state, but the Trust was part of a more mature and established colony, which extended its resources from Sydney. The process underlined the colonial origins of the state, which during the nineteenth century had established its authority and infrastructure first in the capital city and then moved out to the rest of New South Wales.
Chapter 5.

Water, Sewerage and the centralisation of the Department for Public Works 1900-24.

The changes occurring in the administration of the DPW were perhaps most apparent in the provision of water and sewerage facilities to Sydney. The construction of these facilities was monopolised by the DPW in the latter half of the nineteenth century, although in 1889 it ceded control of the maintenance of the water and sewerage system to the Metropolitan Board of Water Supply and Sewerage. The MBWSS was essentially a revenue collecting body responsible for the maintenance of the water and sewerage system of Sydney. However, the MBWSS steadily developed an engineering expertise, culminating in the formation in 1924 of the Metropolitan Water Sewerage and Drainage Board which took over the functions of water and sewerage construction, except for the very large projects, including dams.

The process of granting the MBWSS engineering expertise began with the appointment of J.M. Smail, an engineer previously employed by the DPW, to the position of Engineer-in-Chief of the MBWSS in 1894. Two years later, Cecil West Darley, the Chief Engineer for the Harbours and Rivers Branch of the DPW, was appointed President of the MBWSS. The inferior status of the Board was underlined the following year when Darley resigned to become Engineer-in-Chief of the DPW, second only in the DPW to the Under-Secretary and the Minister. Darley's position was ostensibly to supervise the engineering details of the work of the DPW, while the Under-Secretary was expected to deal with purely administrative matters. The arrangement did not work in practice because the Under Secretary, Robert Hickson, was also a highly competent engineer, and he was reluctant to delegate 'professional' matters to Darley. Furthermore, Hickson was subject to the Public Service Act 1895 which took away much of the autonomy previously enjoyed by many of the senior engineers, and handed over the control of staffing and administration to the newly-formed Public Service Board. To that extent, the DPW became more of a bureaucracy, with Hickson at its head.
Both Darley and Hickson left the DPW in 1901,¹ and Joseph Davis, head of the Sewerage Construction Branch was made Under-Secretary. Davis experienced the same difficulty as Hickson in asserting his authority, and many of the senior engineers found his administration intrusive, so much so, that he earned the tag, 'Chief of Chiefs', among his subordinate officers.² The position of Engineer-in-Chief was not filled after Darley's departure, and Davis was made chairman of the Board of Reference which met every fortnight to discuss the technical details of the work of the DPW. This chairmanship was also a subject of contention among the senior engineers.

Among Davis's most outspoken opponents was Thomas Keele. Keele had served the DPW since 1868 and he was made head of the Harbours and Rivers Branch in 1901. Keele was more dissatisfied than most with the administrative changes occurring in the DPW, and he was especially concerned with the decision to confirm that Davis was a 'collateral' with the Minister in 1903. As a consequence, Davis was confirmed the supreme authority within the DPW, answerable only to the Minister. Keele's dissatisfaction with the arrangement was exacerbated by Davis's decision to deny Keele the opportunity to build the first large dam in New South Wales, on the Cataract River, although the Public Works Committee approved the dam which Keele designed in 1903. Instead Davis awarded the task to a younger engineer, L.A.B. Wade, who was head of the Harbours and Rivers Branch.

Keele's dissatisfaction with Davis, and his handling of his dam, was heightened by the general knowledge that the expected increase in the population of Sydney would place great strain on the existing water and sewerage system and require massive investment to cope with the additional demand in the not too distant future.

The Sydney Water Supply System.

Sydney lagged behind comparable cities in water supply. At 44 gallons per day per person, the Sydney Water Supply released much less water

¹ Darley became consulting engineer to the government in London, and Hickson was made President of the Sydney Harbour Trust.
² Deane Papers, Mss 610, National Library.
to the city and metropolis than other large cities in Australia. The water supply system in Melbourne and Adelaide both supplied over 60 gallons per head per person, and the Brisbane supply was not far behind. All these systems compared unfavourably with American cities, the thirteen largest of which supplied an average of 79 gallons per head per person every day. It was clear that there was much room for improvement in Sydney, even to keep pace with its Australian sister cities.

The improvement of the system involved a complicated procedure and required that the update of each part of the system should form part of an integrated programme of improvement. A reservoir with a large amount of water was not useful if there was not sufficient pipes to convey the water, and vice-versa. The system which in 1901 supplied 21,582,000 gallons of water to 98,000 houses in the metropolis, consisted of several different sections. It derived its water from a large catchment area which fed three rivers, the Nepean, the Cordeaux and the Cataract. A dam was in place across the Nepean River, and a portion of the flow was fed into a tunnel, four and a half miles long, which conducted it to the Cataract River. Nearby, a dam lay across the Cataract River, and the flow from the river was conveyed through a system of tunnels and canals, forty miles long, to the Prospect Reservoir. From here, the water proceeded by canal to the Pipe Head Basin, sixteen miles from Sydney, when it was brought a further five miles by two wrought iron pipes, six feet in diameter, to Potts Hill Reservoir.

At this point the water was directed for distribution within Sydney. Two 48-inch mains left Potts Hill Reservoir. One headed directly for Crown Street Reservoir, while another went to Lewisham. At Lewisham, the main was bifurcated, with one branch leading to Petersham Reservoir. The other went to New Canterbury Road, Petersham, where it met the main leading to Crown Street. From here, water was supplied to the city, and to reservoirs in Centennial Park, Woollahra, and Waverley for the Eastern Suburbs. Petersham Reservoir provided much of the water for the suburbs to the south including Hurstville and Kogarah, and Ashfield to the

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5 The following is taken from MBWSS Fourteenth Report, 1901, ibid, pp.10-11.

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west of the city was provided with water from Woollahra Reservoir on account of its elevation.

For North Sydney, a pipe ran from Potts Hill to Ryde Pumping-station Reservoir. This reservoir fed tanks at Ryde village and at Chatswood. The Ryde tank supplied the whole of Ryde, Gladesville and Hunters Hill and fed a nine inch main over the Parramatta River and Lane Cove Bridge to supply Balmain on the southern side of the Parramatta River. The Chatswood tank supplied the Northern Suburbs of Lane Cove, Willoughby, North Sydney and Mosman. The Chatswood tank also had pumps to lift water to tanks at Pymble and Wahroonga, and these tanks supplied the Epping-Hornsby-Beecroft area to the North East of the city.

Although the Prospect Reservoir had a gross capacity of over 11,000 million gallons of water, the 'lower canal' from Prospect to Pipe-head was capable only of carrying 50 million gallons a day. The supply was further reduced by the two pipes which conveyed water from Pipe-Head to Potts Hill, as they took only 36 million gallons of water a day. The Parliamentary Standing Committee on Public Works recommended in 1897 that a beginning could be made to the improvement of the flow by enlarging the 'lower canal'. The Public Works Committee recommended that the sides of the lower canal should be raised 2 feet 6 inches in order to raise the level of water in the Pipe-head Basin. This in turn would ensure a high level of water in the Potts Hill Reservoir 'for the better supply of Sydney and suburbs'. The canal would be able to discharge 53 million gallons a day, and the pipes from Pipe-head would be able to convey 43 million gallons a day to Potts Hill.

The 1897 Public Works Committee recommended that the method proposed by Cecil West Darley to improve the canal, when he had worked for the MBWSS, should be adopted. Darley suggested that the parts of the embankments which had fallen down or which were in serious disrepair, should be removed and replaced with new stone packing or with concrete. However, since the 1897 Public Works Committee also recommended raising the banks, Darley advised that if the lower canal

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7 Ibid, p.13.
8 Coltheart and Fraser, Landmarks in Public Works, 1897, p.121.
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was being raised then the whole of the embankment should be pulled down, and replaced entirely with 'rich' concrete.9

The improvement of the canal was held up by a drought which had afflicted New South Wales since 1896. So severe was the drought that by 1902 the stocks of water in Prospect Reservoir were dangerously low and the waters of the reservoir, which normally flowed through gravitation, had to be pumped. The top water level of 195 R.L.(Reservoir Level) fell to 175.89 R.L. in June 1902 and it continued to fall until it reached 172.19 R.L. on 15 October 1902.10 Rain, however, fell heavily in the months that followed and the water level rose until January 1903, when a height of 185.60 R.L. was attained. Another dry spell followed, and it was feared that it would be necessary again to pump the water out of Prospect Reservoir. Rain fell in sufficient quantities, however, after a number of weeks, to fill the reservoir to gravitation level, which was 177.00 R.L. An idea of the scale of the drought can be gleaned from the fact that although the amount of water from the gravitation level to the top water level totalled 6000 million gallons, from November 1901 to April 1902 alone it was estimated that the reservoir declined in capacity by 4,811 million gallons, representing nearly half of the total available supply to Sydney.11

The MBWSS had responded to the crisis by asking the people of Sydney to restrict the use of water. Sprinklers were prohibited and municipal street cleaning was curtailed. The ten shilling charge for the unrestricted use of hose water was abolished. Thereafter water was charged according to measure. The effect of these restrictions and the appeals of the MBWSS to reduce consumption resulted in an overall reduction of twenty five percent during the year 1902-3 on the previous year. The average daily per capita use of water fell from 43.02 gallons in 1901-2 to 32.28 gallons in 1902-3.12

The Royal Commission on Water Supply 1902-3.

The Government responded to the crisis by appointing a Royal Commission on Water Supply in March 1902. The members of the

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commission were asked to consider ways of improving the distribution of water to Sydney 'so that action may be taken without delay to obviate a recurrence of the conditions which prevailed last Summer'. As in the case of the Sydney Harbour Bridge Advisory Board, the commission largely consisted of the men of the Board of Reference of the Public Works Department. This included Joseph Davis, Under-Secretary; Henry Deane, Chief Engineer for Railway Construction; W.L. Vernon, Government Architect; William John Hanna, Principal Engineer for Roads and Bridges 1901-1905; Thomas Keele, Principal Engineer, Harbours and Rivers Branch 1901-04; and L.A.B. Wade, Principal Engineer, Water Supply and Sewerage Construction Branch. In addition to the members of the Board of Reference, the Government appointed Thomas Hughes, the Mayor of Sydney, and Edward Knox, the General Manager of the Colonial Sugar Refining Company.

Within a month, the commissioners reported that certain improvements should be made to the system immediately. In general, they found that it was not carrying the amount of water it was originally designed for. The sides of the canals and tunnels above Prospect were rough and irregular, and this slowed down the flow of the water. In addition, some parts of the canal were U-shaped, and these also slowed the passage of water. The commissioners noted that the embankment at Prospect Reservoir tended to slip during low water level periods, reducing the capacity of the reservoir. The commissioners did not see the need for an entire overhaul of the lower canal, but suggested that a section known as the long embankment, measuring some 3,000 feet in length, should be renewed in the near future. The most suitable method would be to line the sides with brick and the channel floor with concrete.

The commissioners recommended a complete overhaul of the mains and pumps. They recommended improving the method of pumping to the Northern Suburbs by installing new machinery at Ryde, and discarding the pumping plant at Chatswood. They also suggested that new areas, including Manly, on the north western side of the North Shore, should be included in the system. Similar problems relating to increased consumption existed to the south of the harbour. The mains feeding Crown Street Reservoir were no longer up to the task of supplying

13 Royal Commission on Water Supply, First Report, NSWLA, 1902, p.11.
14 Ibid.
sufficient water, while the pumps lifting water to Centennial Park from Crown Street were taxed to the utmost. The commissioners recommended an extra main to Crown Street, in addition to new machinery for the Centennial Park mains. They also suggested placing new machinery at Potts Hill in order to supply the elevated portions of of the Western Suburbs of Ashfield, Leichhardt, Canterbury, Balmain and Five Dock, rather than have them supplied from Centennial Park, thereby reducing the pressure on the pumps at Centennial Park.16

The MBWSS, the DPW, and the Lower Canal.

The DPW were prepared to leave the upgrading of the machinery and plants to the MBWSS, but it was unwilling to pass on the responsibility of upgrading the Lower Canal. The DPW informed the MBWSS in May 1902 that it had accepted a tender from an engineering company for 10,000 feet of pipes for a by-pass when the canal was being renovated.17 The Board replied, however, that the pipes, with a diameter of 32 inches were not large enough. The Board believed that 6 feet mains would be required when the work on the Lower Canal began. More importantly, the Board informed the DPW that this work was not the responsibility of the DPW at all, but that of the MBWSS. The message was ignored by Joseph Davis, the new Under-Secretary, after the departure of Robert Hickson in 1901, who told the Board in early June that the organisation and planning for the reconstruction of the lower canal, by the DPW, were already well underway.

The day after Davis relayed this message, the Board pointed out that the Act of Parliament which sanctioned the project envisaged having the MBWSS undertake the work. The renovation of the canal would 'interfere with the supply to the metropolis', and would therefore have to be under the charge of the MBWSS.18 Furthermore the Board insisted that not only should it do the work itself, but it should do it with monier plates, rather than with brick and concrete. The idea of the Board was to leave the present embankment as it was, and place monier plates, made on site, over the bank. There were two significant advantages to this method. The

16 Ibid, p.16.
17 The following is taken from the evidence of T.W. Keele, 20 Sept, 1905, Public Works Committee on Lower Canal and Booth Town Aqueduct--Sydney Water Supply, NSWLA, 1905, p.3.
18 Ibid, p.3.
first was that it did away with the need for removing the stone embankment, and possibly the laborious task of rock cutting, which might be necessary in certain sections of the bank. Secondly, since the bank was not interfered with, the canal could be used at short notice during the repairs if it was necessary.

The MBWSS pressed its point of view to the Minister, E.W. O'Sullivan, when he received a deputation from the Board, consisting of Jacob Garrad, the President, and J.M. Smail, the Engineer-in-Chief. O'Sullivan approved of the work being done by the MBWSS and he then arranged a conference between the Board and the Board of Reference on the 16 July 1902 to resolve the matter. The DPW agreed to let the MBWSS carry out the work, at the behest of the Minister, but it insisted that the work should at first be carried out with concrete, and not monier plates. There was, however, an important concession:

It has also been decided, so far as the cuttings are concerned, that should your Board be able to show that Monier lining is cheaper than the ordinary concrete lining, there will be no objection to its adoption.19

Fully confident that he could prove the superiority of monier lining, Smail accepted the resolution.

Therefore, when work began on the lower canal in May 1903 the MBWSS experimented with both concrete and monier plates. The monier plates were manufactured on the site, shaped to fit the side and bottom of the canal. They were reinforced by iron mattresses to the back, and measured two inches thick. When they projected above the present height of the canal they were supported with a backing of earth. The work was carried out entirely by the MBWSS 'owing to the obvious necessity for the Board's officers to maintain complete control of the canal.'20 The only part played by the DPW in the repairs to the canal was to provide a by-pass for the sections being worked on.

To the satisfaction of the MBWSS, it became obvious after using the concrete for a considerable length that the monier plates were superior. They were cheaper than concrete and they also appeared to be structurally superior:

The concrete work shows the inevitable transverse crack between sections, due to contraction; whereas in the "Monier" work the effects of contraction are so distributed as to be practically imperceptible.\(^{21}\)

After laying 1,909 feet in concrete it was decided to make exclusive use of the plates for the rest of the work, totalling some 3000 feet. A Public Works Committee examined the work of the MBWSS on the canal in 1905, after a total of £49,054 had been spent on raising the sides of the canal with both monier plates and concrete. It was apparently impressed with the work, and it therefore recommended that the entire canal should be re-lined at the cost of another £55,000, principally with monier plates.\(^{22}\) The amount of money saved by using the monier plates over the longer stretch was a matter of £2000.

The Under-Secretary of the DPW, Joseph Davis, was a particularly powerful adversary of the MBWSS. Not only was he initially opposed to Board carrying out the work, but he was especially opposed to the Monier system. He was sure that the brick and concrete method was correct and he had persuaded the Royal Commission on Water Supply to accept his advice that the canal should be built with a concrete bottom and brick sides. Davis reiterated his opposition to the monier method when the Public Works Committee was required to look at the work on the lower canal in 1905, when it was proposed to extend the renovations down its entire length:

My objection to the Monier System for lining the canal was principally on the ground, not of the Monier structure - because I am aware of its advantages, where it can be introduced with economy - but because, in this particular case, it seemed to me that the most you could say for the plates proposed to be put into the canal was, that they would reduce the friction owing to their smoothness. But I did not really see - and I do not see now - how it was possible to make these plates water tight. In other words, my view on the matter is this; that the water must get through the seams between the two plates - either the horizontal or the vertical seams - and in that way percolate through the old pitching into the embankment.\(^{23}\)

Davis had his views on the matter undermined, however, by the less forceful objections to the method by some of his subordinate officers in the DPW. Leslie A.B. Wade, Principal Engineer for Rivers, Water Supply, and Drainage agreed with Davis that the danger in the Monier system was

\(^{22}\) Report of the Public Works Committee on Lower Canal and Booth Town Aqueduct, op cit, p.8.  
\(^{23}\) J. Davis, 26 Sept 1905, ibid p.21.
that the joints must eventually leak. On the other hand, Wade pointed out that that he did not see any reason why they would not be effective. Monier plating had been used elsewhere in connection with the water supply and they had proved to be satisfactory. Arthur Edward Cutler, the former Assistant Engineer for Water Supply and Sewerage in the DPW, also found monier plates to be generally effective. Cutler was the first engineer to design work based on reinforced concrete in New South Wales and he considered himself to be something of an advocate of monier plates. Cutler believed that monier plates would be perfectly safe for the canal, and although he expressed reservations about leakage through the joints, he thought that the problem could be overcome by breaking the joints between the plates, rather than leaving them smooth as at present.

The recommendation of the Public Works Committee is significant in that it was also a recognition that the MBWSS had the capacity and the responsibility to construct water works. The DPW no longer had a monopoly on this type of 'public work'. This had considerable implications for it was fully expected that the water supply would have to be greatly replenished in the future, and there appeared to no end to the need for an expanding water supply. The eventual outcome of the work on the canal meant that it would have the capacity to convey 87 million gallons of water a day to Sydney. This was far in excess of the needs of Sydney at that time, as the average daily consumption was only 22 million gallons a day. The MBWSS claimed it was looking to the future, however, when it expected daily consumption to reach an average of 50 million gallons a day within two decades. They estimated that the increase would follow on from the increase in the population, but also the expected industrial development of the city, already making its mark in some areas to the south, such as Waterloo and Alexandria.

The submission and centralisation of the Department for Public Works.

The decision to award the task of construction to the MBWSS came at a critical moment in the fortunes of the DPW. Its chief engineers were virtually autonomous some fifty years earlier, but by the late nineteenth

century, the senior officers of the DPW found that not only had they to submit their work to the Public Works Committee, but they also had to submit their authority to the Public Service Board formed in 1895. The Public Service Board effectively removed control of staffing from the DPW, and thereby reduced much of the autonomy of the senior officers of the department. Many of the older officers remembered the period between 1860 and 1890 when the branch heads were virtually masters of all they surveyed:

...it was an unwritten law in the sixties, seventies and early eighties, that the recommendations, and very often, the decisions of the then Chiefs of the branches were accepted, few being departed from. They had an almost arbitrary power in suggesting the construction of large public works, and the appointment of officers to supervise the same.26

The dilution of the autonomy of the branch heads culminated in the decision of the Secretary for Public Works to confirm that the Under-Secretary, Joseph Davis, had 'collateral powers with the Minister' in January 1903. From that point, Davis had the sole authority to consult with the Secretary on matters of administration.

The decision to confirm that Davis was a 'collateral' with the Minister was the result of a dispute that had arisen between Henry Deane and Davis. Deane resented the recent infringement upon his authority as a result of the Public Service Board and was unwilling to bow to the authority of the Under-Secretary. Deane had a 'recollection of the great authority exercised by the Professional Heads of the branches of the Public Works Department in the years gone by.'27 He refused to believe that he was to be denied the full responsibility for the administration of his staff, and his own work.

Davis's authority was also resented by another of the older engineers of the department. Like Deane, Keele was disappointed by the relative lack of authority vested in the branch heads by the time he was appointed head of the Harbours and Rivers Branch. Keele struggled against the encroachment of the power of the Under-Secretary, and this lead to an

26 *Royal Commission into the discrepancy between the estimated cost of the Cataract Dam and the amount it is now anticipated it will cost to complete the structure*, NSWLHA, 1905, Appendix J to Exhibit No. 11, Minute paper, 27 January 1903.
enormous public dispute involving also the Minister and the whole Board of Reference.

The dispute concerned the design of one of the most significant public works carried out by the DPW, the Cataract Dam. It was the first major dam to be constructed in New South Wales, and it was a result of a recommendation of the 1902 Royal Commission on Water Supply that a storage reservoir should be placed above Prospect. This would enable Prospect Reservoir to be kept full for longer periods. Davis, the President of the Royal Commission therefore asked L.A.B. Wade, head of the Water Supply and Sewerage Branch of the DPW to send his surveyors to the catchment area to try to discover if a suitable site existed. Wade sent his surveyors to the Cordeaux and Nepean River areas. Davis then asked the MBWSS to send a surveyor to the Cataract River area. This surveyor appears to have been held up and his work proceeded very slowly. Consequently, Davis instructed T.W. Keele, then head of the Harbours and Rivers branch, which ordinarily would have had nothing to do with the question of water supply, to send his surveyor to assist the officer from the MBWSS.28 When their work was completed it was expected that all the estimates would be lodged with the Water Supply and Sewerage Branch, which would have the responsibility to design a dam for the chosen site.

Fate, however, had designs of its own. When the officers had completed their surveys, both Wade and Davis were absent as they were involved with the inter-state commission on the Murray River.29 Instead of lodging the estimates provided by his officer with Wade's branch, Keele decided to make use of the estimates to prepare a dam himself. Keele was undoubtedly encouraged to prepare a design because he was aware that the area which his officer surveyed, the Cataract River, was ideal for the dam. A dam below the junction of Cataract Creek would be more accessible than the other sites. There would be less loss of water through evaporation, and in addition, there would not be any need to increase the capacity of the canals to cope with the extra supply.30 When Davis and Wade returned, the members of the Royal Commission agreed that the

28 L.A.B. Wade, 12 May 1905, Royal Commission into the discrepancy between the estimated cost of the Cataract Dam and the amount it is now anticipated it will cost to complete the structure, NSWLA, 1905, p.261.
29 See C.J. Lloyd, Either Drought or Plenty, water development and management in New South Wales, Department of Water Resources NSW, Sydney, 1988, pp.232-256.
most suitable site for the dam was on the Cataract River, even though the
surveys for the other rivers had not yet been completed. The
commissioners therefore recommended the construction of a dam on the
Cataract River in any event.31

The commissioners were not, however, agreed on the scale of the dam
to be built. They wished to provide for an average daily intake of 60
gallons per capita, compared to the 40 gallons per capita then being
consumed. With the increase in population, the total amount of water
consumed per day in ten years time was estimated at 40 million gallons.
Annual consumption would therefore amount to 14,500 million gallons. In
order to provide this amount of water, the Royal Commission estimated
that it would be necessary to build a dam that would provide a little more
than 6,500 million gallons storage.32

A minority of commissioners, consisting of Keele, Wade, and Thomas
Hughes disputed the majority report. Although the minority agreed that a
dam to impound 7000 million gallons was sufficient for the present, they
believed that such an ideal location should be exploited to the full and
provision should be made for raising the dam in the future. They
therefore proposed that a more expensive dam capable of being raised to
enable it to impound 18,000 million gallons of water should be erected.

As a consequence, the Public Works Committee which examined the
plans for the dam was presented with more than one proposal. Both Keele
and Wade decided to try their luck with their designs in competition with
those of the majority commissioners. They opted for bigger dams than
that proposed by the majority commissioners, which was designed to
impound water to a maximum of 120 feet deep, and estimated to cost
£126,000. Keele proposed the largest dam to be 160 feet high capable of
impounding water to a depth of 150 feet. The cost was estimated at
£217,500 and for this expense, the larger dam would impound 18,200
million gallons of water.33 Wade proposed a medium sized dam, 140 feet
high, impounding 14,000 million gallons. He chose the medium sized dam
on the grounds that the dam would have attained its 'economic limit' at
14,000 million gallons. He believed that a larger dam would simply be an
unnecessary expense.34

31 Ibid.
32 Ibid.
33 Minute by the President(MBWSS), 24 January 1905, Royal Commission on
Sydney Water Supply(Cataract Dam), 1905, p. 60.
34 Minute by L.A.B. Wade, 10 March 1905, ibid, p.8.
Keele's original Dam and site:
*Royal Commission into the discrepancy in estimates of Cataract Dam 1905.*
The Public Works Committee disagreed with him, however, and it chose the largest dam presented to it, that is, Keele's dam. The Committee accepted the larger scheme on the grounds of making full use of the site but also to provide as generous a water supply to the city as possible. This made sense on economic grounds to the Public Works Committee. It reasoned that if a large sum of money was to be spent on the dam it was better to make the best use of the expenditure, rather than have to set aside additional expenditure for another dam in the future. Keele had therefore managed to win approval for a scheme virtually unsupported by any of the other members of the Royal Commission, or any of the other officers of the DPW.

The Dispute between Davis, Wade, and Keele.

From the onset, Keele faced a tough struggle to complete the project. The officers of the DPW probably disapproved of an officer of one branch attempting to steal a contract from an officer of the branch which had been earmarked for the project. Wade was certainly upset, and Davis probably felt that his authority had been undermined. Consequently, Davis went ahead with the original arrangement and in the last week of July 1902 awarded Wade the task of constructing the dam not long after the Public Works Committee approved of Keele's design. Keele was naturally incensed and went to see the Minister, E.W. O'Sullivan in the hope of having the decision reversed. He had little real grounds for complaint, however, as Davis was well within his rights to award the task of construction to Wade, for the latter was the head of the branch originally responsible for the project. Keele's victory over his fellow officers was shortlived.

Not only was Keele denied the chance to construct the dam, but he was not given any information about its progress. From July 1902, when the project started, Davis and Wade conspired to keep Keele in the dark about the construction of the dam. Wade would not talk to him about it and Keele was kept in 'total ignorance of what was being done in

36 Minute by Joseph Davis, Under Secretary for Works, 8 March 1905, ibid, p.1.
37 Ibid, No.20.
connection with the work'. Any information he had was what he read in the newspapers. Keele had therefore effectively lost any influence he may have had over the outcome of the dam.

Keele, however, was once more brought into contact with the dam in 1904. As a result of the retrenchment of the DPW in 1904, Thomas Keele, who had long experience in water and sewerage matters, was appointed President of the MBWSS by the Government in March of that year. The MBWSS had a number of complaints over the manner in which the dam was being built and Keele saw to it that these complaints were followed up. The complaints included the site of 'Cataract City', the name given to the campsite where the workforce resided during the construction works. The Board believed that the campsite was too close to the dam, and the refuse of the camp could in future contaminate the water supply. Keele therefore asked Davis to move the campsite further away from the dam area. Another complaint concerned the railway line used to bring materials up to the site of the dam. The line was laid in the bed of the reservoir for the dam construction. Keele reminded Davis that the Royal Commission on Water Supply contemplated a build up of water while the dam was being built in case of another drought. It was not possible to have a slow build up of water while the railway line remained in place.

It was not until November 1904, however, that Keele found something truly alarming wrong with the dam itself. Keele and Smail visited the site after it was reported in the newspapers that the foundations for the dam were nearly complete and the masonry work on top of it would begin shortly. Keele was especially unhappy with what he saw there, noting that the foundations were built on a slope. Keele maintained that this could cause the dam to subside or slide down during a flood. There were other departures from the original design, but this was a matter which could affect the whole project. On his return to Sydney, therefore, Keele went straight to Davis and told him of what he had seen. According to Keele, Davis was unwilling to accept any responsibility for the construction. This was not good enough for Keele, there were professional standards at stake in the issue:

38 Appendix F to Exhibit 11, 28 November, 1904, 'silence between Mr Wade and myself has been the order of the day in all matters relating to the Cataract Dam.', Ibid, p.543.
40 Royal Commission on Water Supply, Third and Final Report, NSWLA, 1903, p.10.
41 Appendix F to Exhibit No. 11, 28 Nov 1904, Royal Commission on discrepancy on estimates, p.543. No.8.
He [Davis], however, disclaimed any responsibility, and stated that he did not visit the work in any other capacity than that of Under Secretary. I pointed out to him that, as an engineer, and particularly as he had been appointed consulting engineer to the Department, and visiting the work frequently as he did, he could not avoid responsibility if anything went wrong with the dam hereafter, any more than I could, being also an engineer, and seeing the objectionable things that I had described, if I remained inactive I would be equally culpable. I described the position for both of us as "standing on the brink of a precipice".\textsuperscript{42}

Keele, forever anxious to bring the matter before the Minister, threatened Davis that he would inform the new Minister, Charles Lee of the problem of the foundations. Davis tried to hold off Keele but unable to do so, he offered a compromise by bringing the matter before the Board of Reference.\textsuperscript{43}

Keele had retained a place on the Board of Reference after his appointment to the MBWSS but he was aware that he had few, if any, supporters on the Board. He had an interview earlier with the Minister about its composition on 9 November, some four days before he visited the site when he complained of its lack of expertise in the work of the dam. Keele attempted to persuade the Minister to appoint J.M.Smail, the Engineer-in-Chief of the MBWSS, and Robert Hickson to the Board of Reference to give it 'greater engineering strength to carry out the duties in connection with this important work'.\textsuperscript{44} Keele's request was turned down, nonetheless, and he had to carry out his fight alone in the Boardroom of the DPW.

Bringing the matter before the Board of Reference, however, would at least give him the opportunity of forcing the Minister to examine the problem, and in this regard, Keele was successful. The first of what proved to be many meetings of the Board of Reference to be convened on the subject of the Cataract Dam took place on the 26 November 1904.\textsuperscript{45} After a lengthy discussion it was adjourned until two days later when Keele read a statement to it. In the statement Keele merely reiterated what he had told Davis a month earlier, his argument seemed reasonable and he admitted that the question of the foundations could be explained satisfactorily. At this moment he seemed more keen on

\textsuperscript{42} Statement of Keele, Exhibit No. 11, \textit{ibid} p.537.
\textsuperscript{43} \textit{Ibid.}
\textsuperscript{44} Statement of Keele, Exhibit No. 11, \textit{ibid}, No. 68.
\textsuperscript{45} \textit{Ibid.}
highlighting the snubbing he had received from Wade and Davis over the last two years.

I have been kept at arm's length, and silence between Mr Wade and myself has been the order of the day in all matters relating to the Cataract Dam. Representations to the Under-Secretary have gone unheeded. This is not as it should be. I have no other desire but that there shall be nothing but the best of work in this very important undertaking.\(^\text{46}\)

The Secretary for Public Works, Charles Lee, received a report of the meeting, and he again met Keele on 9 December. Subsequently, Lee recommended that the question raised by Keele, including the foundations, the design, the construction, and the railway line should be investigated by the Board of Reference.\(^\text{47}\)

At the next meeting of the Board of Reference on 19 December, Keele concentrated his efforts on the question of the alterations made to the size of the dam by Wade. It had transpired since 1902 that the survey of the area upon which Keele based his estimates was faulty. One of the surveyors, under pressure of time omitted an area totalling 330 acres from the catchment area. Wade then estimated that the high dam of 160 feet designed by Keele would in fact impound 21,000 million gallons of water when the new area was included in the estimates. The Act of Parliament which sanctioned the dam clearly stated that the dam was to be 160 feet high, in order to impound 'about' 18,200 million gallons of water.\(^\text{48}\)

Wade told the Board of Reference that after reading through the report of the Public Works Committee he reached the conclusion that the critical factor in the dam was that it should impound about 18,000 million gallons rather than be of a certain height. This was in keeping with the Royal Commission where debate surrounded the question of the amount of water to be impounded. Was this not the very reason why the commissioners issued two sets of recommendations in the second report? Wade therefore dropped the height of the dam to 145 feet, giving a storage of 18,603 million gallons of water.\(^\text{49}\) Keele was dissatisfied with this explanation, and he replied that the Act stated that the design of the dam was by Keele, and that it was to be 160 feet high. He seems to have

\(^{46}\) Appendix F to Exhibit No. 11, 28 November 1904, \textit{ibid.}, p.543, No. 10.

\(^{47}\) Charles A. Lee, 12 Dec 1904, \textit{Royal Commission on Water Supply(Cataract Dam)}, \textit{NSWLA}, p.44.


\(^{49}\) \textit{Ibid}, p.47.
believed that Wade was trying to alter the dam in such a way that it could no longer be reasonably claimed by Keele to be his own work.

Keele had no supporters on the Board, however. Hanna stated that he always preferred a smaller dam, to be supplemented by another dam on the Nepean should the need arise for more water. Colonel Vernon sneered that the Public Works Committee were only concerned with the question of water and not 'the mere engineer's detail question of the height or width or thickness of the dam'.

The Minister, Charles Lee was, in fact, the only person with the authority to settle the dispute. Lee was the 'Constructing Authority' of the dam, and the modification of the dam required his permission. Lee therefore met the Board of Reference on 29 December 1904 in the hope of finally settling the problem. Lee was not, however, an engineer, and he could not possibly investigate the technical questions involved in the dispute. When Keele outlined the various structural faults of the dam, particularly the foundations, none of this impressed Lee as he was not competent to deal with them. Lee asked for the costs of the respective schemes. These could not be supplied as the expenses of the dam had overrun the earlier estimates and more money had to be voted in Parliament for the project. Davis suggested, nonetheless, that the difference in cost between a dam of 145 feet and a dam with a top water level of 150 feet would amount to £17,000. There was not much to choose between them, but since the only criteria Lee could base his decision upon was the interests of the taxpayers, he decided in favour of the smaller dam. Keele had therefore lost his case.

The Royal Commission into the discrepancy of the estimated costs of the Cataract Dam 1905.

Lee must have thought that the meeting signalled the end of his trials over the Cataract Dam. Any complacency on his part, however, was given a severe jolt by the revised estimates of a dam 145 feet high. The original estimate for the dam was £217,500, but the new estimate stood at

50 Ibid, p.49.
51 Ibid, p.45.
52 Ibid, p.47.
53 Interview with Minister, 29 Dec 1904, Ibid, p.56.
54 Ibid, p.56.
£350,000. Lee was furious and demanded to know who was responsible for the increase. Davis naturally denied any responsibility but he was in a very vulnerable position. It is likely that he pointed out to Charles Lee that the dam was designed by Keele, and based upon his estimates. He certainly would have avoided pointing the finger at Wade, who after all, was answerable to Davis. Whatever the case may have been, Lee dictated in Davis's presence a minute which was to lead to another Royal Commission:55

The project was always viewed as one of storage for the benefit of metropolitan residents only, and as such it has been designed and provided for; but I much regret to find that notwithstanding the economy that will be exercised, even the erection of a 145-foot dam to impound the statutory quantity of water insisted upon by Parliament, will cost at least £132,000 in excess of the amount voted by the Legislative Assembly, and this latter amount, I am reluctantly compelled to add, was determined upon by the estimate and evidence of the then Principal Engineer for Harbours and Rivers (Mr Keele), thus showing conclusively that he has misled, not only the Committee, but the Parliament of the Country.56

A few days later, a conference consisting of local politicians to discuss the lowering of the dam to 145 feet was convened in Sydney Town Hall on the 24 February 1905. Davis attended the meeting, and as well as issuing Lee's minute he issued his own outlining his account of the Cataract Dam dispute. Davis claimed that Keele greatly underestimated the size of the foundations that were necessary for the dam, and he also gave wrong estimates for materials. At no stage did Davis accept even a modicum of responsibility for the problem. Davis then attached his own account of the dispute to Lee's minutes for distribution to the press and public.

Such is the background to the extraordinary 1905 Royal Commission into the discrepancy between the estimated cost of the Cataract Dam and the amount it is now anticipated it will cost to complete the structure. The Royal Commission was appointed on 13 March, consisting of a sole commissioner, George A. Wilson. To assist him, Wilson appointed D.C. Simpson, an engineer with the Railway Commissioners, to advise him on what promised to be an inquiry dominated by engineering details. The parties to the inquiry were Keele, on one side, and the DPW on the other. The chief figures on the side of the DPW were Wade, Davis, and the

56 Ibid, p.10.
Resident Engineer on the site, J. Symonds. Both parties were represented by lawyers. They were allowed to cross examine each other in what was effectively the Board of Reference on show. Other witnesses included Hanna, E. M. De Burgh, and Colonel Walter Vernon.

The conclusion reached by the commissioner was as predictable as could be expected. He found that once Wade had been given the contract for the dam he undertook its construction along the lines he deemed fit. All that he was required to do was to remain within the terms of the Act which sanctioned it. Wade had indeed made a number of significant departures from the original design, pushing up the costs of the dam. Wade did away with the idea of a spillway at the side of the dam, but had the dam built to its full height all the way across. As a result he had to excavate the side of the hill to provide for a by-wash which had to be extended.

It was agreed that the modifications were an improvement on the original design, and some changes were inevitable as Keele's design was not a final blueprint for the dam. Indeed, it was pointed out that the original design prepared by Keele for the Public Works Committee was of a rough and ready nature. There was an 'absence of detail' in the plans due to 'the hurry in which the whole scheme was prepared'. Wade was admonished, however, for not consulting the Minister before altering the by-wash as a result of his decision to lower the height. The modification had only come to the attention of the Minister after Keele complained about it.

Wade had also changed the composition of the dam quite considerably. Keele had intended the dam to be built of 'concrete', and he suggested that savings could be made by pouring small stones, roughly the size of a human hand, into the mixture. Wade, however, had substituted these with large stones over two tons in weight. In addition, Wade had replaced the concrete facing suggested by Keele, with a facing built of blocks of basalt-concrete. As in the case of the other alterations, Wade had sound reasons for making them. In the case of the large stones or 'plums', as they were known, Wade had made the change after consultations with Cecil West Darley who had seen some of the larger American dams. E.M. DeBurgh also supported the adjustment after he had seen the construction.


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of Gaban Goch Dam in England.\textsuperscript{59} The method later became known as 'Cyclopean masonry' and was to become the standard form of dam infill in the New South Wales dams.

The Commissioner discounted the claim of Keele that Wade had infringed the terms of the Act. Not a single member of the Public Works Committee was an engineer and it could not presume to judge the dam on the basis of such engineering detail. The Commissioner was also persuaded by the evidence of Thomas Hughes that the 1902 Public Works Committee were more interested in the price and the capacity of the dam than anything else.\textsuperscript{60}

...the question was the expediency of constructing a dam that would hold a certain amount of water. That was the point of view which influenced me all through; not as to how the dam should be constructed, because we were not engineers.\textsuperscript{61}

This must have seemed like music to the ears of Wade and Davis as it removed an essential plank in Keele's argument, namely, that the height of the dam was uppermost in the minds of the various commissioners and committee members in 1902, rather than the capacity. Keele was also defeated in his argument that Davis must accept responsibility for the alterations, particularly in view of his appointment as 'Consulting Engineer' to the Government. The evidence of Wade clearly showed that Davis allowed as much autonomy to Wade as he possibly could. The dam was Wade's, not Davis's. Try as he might, Keele could not get either Davis or Wade to admit that Davis had any practical connection with the construction of the dam beyond that of being Under-Secretary of the DPW.

Perhaps the most humiliating aspect of the Royal Commission to Keele was the unwillingness of any of the other senior engineers to voice dissatisfaction with Davis. Keele was convinced that many of the other engineers shared his dismay over the decision to grant Davis 'collateral powers' with the Minister in January 1901. Keele believed that the decision to elevate Davis in this way was generally resented by the senior

\textsuperscript{59} \textit{Ibid.}, The method of using large stones, or 'plums' became known as 'Cyclopean' masonry. p.22.
\textsuperscript{60} Evidence of Thomas Hughes, 22 May 1905, \textit{ibid.}, p.355-6.
\textsuperscript{61} \textit{Ibid.}, p.355.
officers in the DPW, and he called witnesses to support him. These witnesses did not give him this support, however; Wade stated that the changes had virtually no effect on him whatsoever and he did not think that his 'professional status' had been lowered by them. W.J. Hanna, Principal Engineer for Roads and Bridges, followed Wade in treating the changes less seriously than Keele had done. Hanna had not even noticed until recently that Davis had been appointed 'Consulting Engineer to the Government'. When Keele put it to him that he was out of date with the literature, Hanna replied crisply 'I have something else to do'. In the case of granting 'collateral powers' to Davis, Hanna had put it down as a resolution of a dispute that had arisen between Davis and Henry Deane. The grant of collateral powers to Davis was a 'matter of very little importance' to Hanna, and it did not encroach upon his duties and his position. The testimony of these officers may not have been entirely truthful, but it appears that the other senior officers of the DPW were more prepared than Keele to swallow their pride and consent to the gradual diminution of their powers.

Keele's advocacy of a large dam was vindicated, and this undoubtedly lightened the blows he had received. A Royal Commission had been appointed in March 1905 to look into some of the more technical aspects of the dam. In particular, these included the question of the reliability of the measurements of rainfall in order to ascertain exactly how much water accumulated in the catchment area. The other problem to be solved was just how much water should be impounded. The commissioners concluded that the actual extent of rainfall was still uncertain, and that the dam ought to be built to a height of 150 feet so as to impound 21,000 million gallons of water. The sentiment that more water should be impounded proved to be well founded, as a water shortage in 1911 prompted calls to build another dam for the Sydney Water Supply. The outbreak of the war, and a generous fall of rain, however, deferred work on the construction of the subsequent Cordeaux Dam until 1918.

62 Ibid, 2693, 26 April 1905, p.87.
65 Ibid, 5593, p.162.
66 Royal Commission on Water Supply (Cataract Dam), NSWLA, 1905, viii. The commissioners were, Stuart Murray, Chief Engineer for Water Supply, Victoria; E.M. DeBurgh; and Charles W. Smith of the MBWSS.
had therefore some justification in claiming at least some for the credit for the dam. In 1908, he told the Royal Society of New South Wales:

...the great dam as it stands completed today, is the materialisation of the views held by the present Lord Mayor of Sydney, the Right Hon. Thomas Hughes, and myself as expressed in the minority report of the Royal Commission in 1902'.

He was perhaps less justified in the omission of the third name in the minority report, Leslie Augustus Burton Wade.

The Long Bay Outfall.

The parties to the dispute were to be locked into battle with one another again in 1907. This time the battle raged over sewerage rather than water, and it gave both Wade and Keele an opportunity to employ their engineering skills in controversy. The conflict concerned the construction of a sewage pipe from the Botany-Rockdale sewerage farm to an outfall at the head of Long Bay some six and a half miles away. As with the Cataract Dam, the factors in the construction of the Long Bay Outfall included the drought of 1900-02, and the increase in population in the Western Suburbs.

The Botany sewerage farm originally served the relatively under-populated Southern Suburbs. The farm consisted of a swampy area, divided into beds upon which the sewage was pumped. The beds were then flooded and used for cultivation. The expanding population of the Southern Suburbs, and of the suburbs to the west necessitated the expansion of the farm over the Cooks River to Arncliffe, in the affluent suburb of Rockdale, in 1897. The area totalled 620 acres, but even this was not large enough to cope with the ever increasing volume of sewage coming from the Western Suburbs. By 1908, some 6 million gallons of sewage per day flowed to the farm.

The farm had another problem in that the soil and site were not suitable for the amount of sewage poured onto it. The area was sandy and the sewage tended to filter through the sand. The farm was also low lying.

69 Evidence of William Brooks, Manager of Botany Sewage Farm, 20 Feb 1908, 5162, Parliamentary Standing Committee on Public Works, Report together with minutes of evidence on scheme for the disposal of the sewage from the Western, Southern, Illawarra, and Botany Districts, NSWPP, Vol 4, 1908, p.252.
and close to open water, and this tended to saturate the soil, raising the water table to within two feet of the surface. The effect was that the sewage merely filtered through the sand on to the water table below and the whole stagnated. As a consequence it was doubtful if the land could ever be properly reclaimed for cultivation or for residential purposes if the sewage continued to be dealt with in this manner. Public dissatisfaction was increased because of the drought as the shortage of water in the sewerage itself accentuated the stench of the farm.

As an initial remedy the MBWSS suggested breaking down and liquefying the sewage in septic tanks. Septic tanks had already been used at the North Sydney outfall to treat heavy detritus in 1903. Previously a lime precipitation system of sewage farming had been used in North Sydney, but this exhumed odours which offended local residents. Septic tanks were constructed here when it was suggested by the MBWSS that the alternative 'biological treatment' involved was cheaper as well as less offensive than lime precipitation. Although septic tanks did release a strong odour, the smell was controlled by placing a concrete roof over the tanks to prevent smells spreading over the area.

In 1905 The Public Works Committee therefore recommended that a similar system be installed at Botany in view of its success at North Sydney. Both the DPW and MBWSS agreed that this was the best possible system in the circumstances. Thomas Keele, however, pointed out that the ideal method of sewage disposal was, in fact, pouring the sewage into the sea:

> After all is said and done, the sewage is a nuisance, which has to be got rid of. What we want is health and purification first, and profit afterwards.

He went on to say that the septic tanks were only justified when a sea outfall was not available, as was the case with Botany.

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70 Public Works Committee on disposal of Sewage from the Western, Southern, Illawarra, and Botany Districts, ibid, p.8.
71 MBWSS, Fifteenth Report, 1903, p.68.
72 See Parliamentary Standing Committee on Public Works on scheme for the treatment of sewage at the western suburbs outfall on the Rockdale sewage farm, NSWLA, 1905.
SEWERAGE SYSTEMS AT DATE OF COMPLETION (1916) OF SOUTHERN AND WESTERN SUBURBS OCEAN OUTFALL SEWER.
Before this recommendation was delivered to the Legislative Assembly for ratification, residents of Rockdale, alarmed at the prospect of septic tanks in the area, rallied the Municipal Council to ask the Public Works Committee to carry the sewage to the sea. The residents did so in the knowledge that the Premier, Joseph Carruthers, who represented Rockdale in the Legislative Assembly, was in an influential position to press for the removal of all traces of sewage treatment from the area.74 Their efforts succeeded and as a result it was resolved by the Public Works Committee that the MBWSS should look at the possibility at constructing a sewer to the ocean when an enquiry was held into linking up Illawarra, to the South of Sydney with the sewage system. Later, the DPW followed suit and informed the Public Works Committee that it would also investigate the scheme for an ocean outfall at Long Bay.

The MBWSS, the DPW, Thomas Keele, and L.A.B. Wade.

The decision of the DPW to present proposals for the outfall set the stage for a renewed bout between Keele and the officers of the DPW. The conflict was made no less acrimonious by the fact that as part of the retrenchments Wade had taken over Keele's old branch and he was now Chief Engineer for Rivers, Water Supply, and Drainage. This time Davis was removed from direct involvement in the dispute because he had gone to England in 1906 after he had been appointed Consulting Engineer to four of the Australian States. He was not, however, entirely above the fracas. Situated in England, he was able to support Wade with reference to English engineering principles and experience. Among other details he supplied Wade with information on outfalls discharging below water levels.75

Essentially, the scheme presented by Keele consisted of pumping the sewage from Arncliffe, under Cook's River, to a gravitation sewer, with a grade of 1 in 1,800, which extended to the northern headland of Long Bay. At the outfall, the sewer would be 6 feet below high spring tides, and the discharge outlet 2.5 feet below the high water mark.76 It was also envisaged that a liquefying tank should be installed in Botany to treat the

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74 Parliamentary Standing Committee on Public Works on a scheme of sewage for the Illawarra suburbs, NSWLA, 1905, p.5.
75 Ibid, p.143.
76 Public Works Committee on disposal of sewage from Western, Southern, Illawarra, and Botany Districts, NSWLA, 1908, p.20.
sewage so as not to defile the beaches at Long Bay with sewage washed ashore.

The DPW presented three separate schemes. The first consisted of a sewer worked solely by the principles of gravity. The second was worked partly by pumping, and partly by gravitation. The third scheme was worked throughout by pumping, but since this was considered to be too costly by the DPW, it was only submitted for reference rather than for serious consideration.\textsuperscript{77} The second scheme was believed by the DPW to be unsuitable for future needs because the pumps needed to work the system would soon be overloaded. The volume of sewage coming from the Western Suburbs and Illawarra was expected to rise dramatically in line with the increasing population in these areas, and it was not certain if the pumps would be able to cope with the extra volume.

The scheme seriously proposed by the DPW was that operated completely by gravitation. This scheme involved constructing a duplicate sewer from Botany, under Cook's River, and then partly through rock and sand to Long Bay headland. The grade of the sewer was to be 1 in 4,400 throughout until it discharged sewage some 15 feet below high water spring tides. It was proposed to carry through one pipe initially, but the tunnelling would be carried out in such a way so that space was left for a second pipe to be laid down if need be.\textsuperscript{78}

Both Keele and Smail strongly objected to this latter scheme. They were convinced that the grade of 1 in 4,400 was too flat to allow the sewage to flow freely all the way to the outfall. This grade would represent a fall of 16 inches in a mile. Wade believed that all that was needed was to maintain a velocity of 2 feet per second, and this was amply done. At both entries to the sewer, screens would remove silt and sand, and the sewerage would flow freely as a result. Wade estimated that when the sewer was half full the sewerage would move at a rate of 2.8 feet per second, more than enough to keep it moving. In addition, if at any time flushing was necessary, this could be done cheaply by drawing water from an old engine pond in Botany.

Keele and Smail, however, did not believe the grade was steep enough. Keele stated that the sewer would silt up if it was built with a grade of 1 in 4,400. The proposed velocity of 2.8 feet per second was only possible

\textsuperscript{77} \textit{Ibid}, p.20.
\textsuperscript{78} \textit{Ibid}, p.14.
at maximum flow, but during dry weather, the velocity could fall to 2 feet per second or less, and would eventually clog up the pipes:

Mr Wade persistently maintains that 2.8 [feet] per second is the velocity of the sewage in the main carrier of his; whereas, as a matter of fact, he has got considerably less than that, because the minimum flow has to be considered. The sewer is frequently delivering at its minimum flow - when it is first built, for instance. The sewer must be discharging for years at a very low depth, comparatively speaking. Gradually, as the years go on, it increases in depth, and at last the sewer is not of sufficient capacity to convey the volume of sewage required, and you have to bring another barrel into requisition.79

Smail gave evidence on how he had originally looked into the possibility of an all-gravitation scheme, but had rejected it because of the low grades. He considered it would have been 'folly' to bring such a scheme before the Public Works Committee.80 Like Keele, Smail highlighted the certain deposit of material along the pipes as a result of a flat sewer:

You must have a fair bottom velocity. It has been proved theoretically and practically that the bottom velocity is only 76 per cent of the mean velocity, so if you take 76 per cent. of a velocity of two feet you will only get about 1 foot 6 inches per second, and everybody who has to do with these things knows that you should have at least 3 feet velocity to keep the sewer clean.81

Wade responded by quoting the standard engineering textbooks on the subject. According to the author of a work entitled "Sanitary Engineering", sewers and drains were best operated with velocities between 3 and 2 feet per second, and the larger the drain the lower the velocity required. This principle 'embodies in condensed form the authorities on sewage velocities upon which we have been working for years,' Wade said.82 Wade also pointed out that the MBWSS had operated with similar velocities, such as its recently constructed sewer from Drummoyne, and the syphon proposed to take the sewage under Cook's River in its present proposal. Both of these carriers had relatively low velocities, indeed the syphon would carry sewage at a slower speed than Wade's sewer.

Keele and Smail easily brushed aside these claims, pointing out that the Drummoyne sewer had a relatively free fall and it did not have all the

79 Ibid, p.23.
81 Ibid, p.25.
complications involved in these proposals. Furthermore, the Drummoyne sewer could be pumped if necessary. As regards the syphon across Cook's River, the velocity was constant, maintained by pumping, but this was not the case in Wade's scheme. The fault of the latter was the effect of an inconsistent velocity over a long stretch.

Another major source of contention was the position of the outfall, and here Wade appeared to have the upper hand. Keele maintained that an outfall 15 feet below sea level would be effected by storms. Water would rush up the sewer and, this would cause a blockage, possibly to the extent of reversing the downward flow. Wade contended that a wave crashing against the headland would have little force at the depth of the outlet. He dismissed Keele's evidence of the force of waves below the surface as incorrect.

For storm waves we have the authority of Gerstner, Airy Scott-Russell, Rankine, Lamb, Peabody, and Lord Kelvin, that wave motion is practically imperceptible at a depth below the sea level at the time equal to the height of the wave...The general result of observations of coast waves shows that, under ordinary conditions, a wave breaks when it enters water the depth of which is equal to or a little exceeds its height from trough to crest. Until this occurs, it may be considered as a wave of oscillation.83

The task of the committee members, with only a lay understanding of engineering, was made no easier by the detailed discussions on whether the waves were really those of 'oscillation' or of 'translation'. If the pun could be pardoned, the committee members were out of their depth in discussions of this kind. The Public Works Committee was probably perturbed also by the obvious personal antagonism between Wade and Keele, both seeming anxious to highlight each other's deficiencies. When asked about Wade's assertion that the pressure underneath the trough of a wave, no matter how high, did not alter much, Keele replied:

My reply to that is this, that that is information you could get from any text-book or physical geography. There is no authority given or anything else. It is merely stuff you can get out of any school-book or text-book.84

To which Wade replied:
In regard to that matter I should like to reply that, if I say that two and two are four, I do not quote the authority; and in that connection, if Mr Keele knew a little more about the elements of his profession, he would

83 Ibid, p.44.
84 Evidence of L.A.B. Wade, 12 August 1907, ibid, p.144.
Velocity of Crests

15 Feet Wave 22 Feet per second
20 do. 253 do.
25 do. 283 do.

Level of water in repose

Fig. 2

Fig. 3

Public Works Committee on disposal of sewage from the Western, Southern, Illawarra, and Botany Districts 1908.
know what I have said. If you say that two and two make four, I do not ask for your authority, because you know it, and everybody knows it.85

In the light of the stubbornly contradictory evidence it was presented with, the committee was undoubtedly relieved to have the opinions of an outside authority. The DPW had arranged and paid for a review of its scheme by a panel of English engineering experts, including Sir Alexander Binnie, president of the Institute of Civil Engineers, and Dr G.F. Deacon, said to be 'the best known hydraulic authority in Great Britain'.86 Needless to say, the panel was assisted by the presence in England of Davis, who supplied them with any additional information they required.87 This panel approved of Wade's scheme, with some modifications. The panel advised an increase in the slope of the sewer, to 1 in 3,650. It also advised that the outfall be brought further down to a depth of 20 feet below high water mark. It suggested making the mouth of the outlet narrower, thus increasing the velocity of the outlet as well as making it more difficult for the movement of the sea to have any effect upon the sewer. One major alteration proposed was to divert the outfall of the duplicate sewer so that it would discharge at least 150 feet away.88

Once the DPW agreed to accept these recommendations, there was little option for the committee members but to recommend the scheme, estimated at £452,400, a mere £3,071 cheaper than the MBWSS's scheme. A bill sanctioning the scheme was passed without opposition in the same year, and the sewage farms were closed in 1916 when the outfall began to flow.89 The DPW had therefore proved that in the area of sewage construction it stood pre-eminent, just as it did in the craft of dam building.

The origins of the Metropolitan Water and Sewerage and Drainage Board 1924.

Nevertheless, time was on the side of the Board. Although the DPW upheld its responsibility for sewerage construction for as long as it could,

85 Ibid.
86 Coward, Out of Sight, p.137.
87 Public Works Committee on scheme of sewage from Western, Southern, Illawarra and Botany districts, op cit, p.51.
88 Ibid, pp. 50-1.
89 Coward, Out of Sight, p.137.
the responsibility passed to the renamed Board under the Metropolitan Water Sewerage and Drainage Board Act in 1924. In the meantime the DPW had constructed the sewer and outfall at Vaucluse, which was handed over to the MBWSS in 1918. It began the construction of the North Sydney sewer stretching from Blacktown to Blue Fish Point at Manly in 1916, to be handed over to the newly formed Metropolitan Water Sewerage and Drainage Board in 1928. This scheme diverted the sewage previously treated in Willoughby Bay and Balmoral as well as other smaller sewers in North Sydney.

The MBWSS made some inroads on the DPW before 1924. The last electrical pumping station to be constructed by the DPW in the Bondi Ocean Outfall System was in 1907, and the last for the Western and Southern scheme in 1908. Thereafter, the MBWSS assumed responsibility for the construction of electrical pumping stations. The MBWSS had also become involved in the construction of large sewerage works in 1906. The Secretary for Public Works, Charles Lee, decided to refer the construction of the sewerage works for Drummoyne to the Board rather than the DPW. In spite of the complaints by the local residents, Drummoyne was connected with the Western Suburbs system after it received the necessary clearance of the Public Works Committee in 1906. Another advance for the MBWSS was the decision to hand over the construction of Hornsby Sewerage Works in 1911 to the Board after the DPW had been working on it for some months.

The growing construction activities of the MBWSS must, however, be put into the context of the willingness of the DPW to allow such an alienation of powers. It was among the first questions tackled by John Hurley, chairman of the Public Works Committee which enquired into the Drummoyne scheme. When Davis gave evidence, Hurley asked him if a system of dual control, by the DPW and the MBWSS was in operation. Davis replied in the negative. Hurley then asked if there was any conflict about the works between the two authorities. Davis replied:

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93 Parliamentary Standing Committee on Public Works, *report together with evidence on scheme of sewerage for the municipality of Drummoyne, NSWLA, 1906*.
SEWERAGE SYSTEMS AT DATE OF COMPLETION (1939) OF NORTHERN SUBURBS
OCEAN OUTFALL SEWER.
No, on the contrary. The Minister has requested the Board to lay this scheme before the Committee, as far as its own part of it is concerned, and in that way relieve the Department of any responsibility in connection with it.95

The apparent ease with which the DPW was prepared to allow the MBWSS to construct such a large work is well revealed in a later inquiry into some improvements to be carried out in the Sydney Water Supply.96 The construction of the Cataract Dam in 1908 had made available greater quantities of water to Sydney but while the lower canal had been enlarged to cope with extra flow, the two 6-foot pipes which conveyed all the water from Pipe Head to Potts Hill had not had any relief. It was proposed in 1910 to construct an additional 72-inch main, in concrete, cement, and steel, alongside the older pipes to supplement the water supply. It was also proposed to build an auxiliary reservoir at Potts Hill to contain one hundred and fifty thousand gallons of water. What was most surprising was that in this case the DPW raised no objection to these works being carried out by the MBWSS. A curious chairman, Frederick Flowers, asked W.J. Hanna what all of this meant.

26. Is this proposal following the ordinary course of business as between the Works Department and the Metropolitan Board of Water Supply and Sewerage, or is this the first break away, when the Metropolitan Board are to carry out a work proposed by the Works Department? This is an amplification of an existing work. If it were a new proposal the Works Department would carry it out.

27. That is not what I mean; The Works Department proposed certain work and the Water and Sewerage Department is going to carry out that work? This is not a Works Department proposal. I am merely putting it before the committee.97

It is the use of the word 'amplification' that probably provides the key to the alienation of responsibility. The proposals did not actually involve the construction of a public work, it was merely an 'amplification' or an extension of an existing one. This was true also in the case of the Drummoyne sewerage system. The main sewer that is, the Western Suburbs sewer, had already been constructed, and the scheme for

95 Evidence of J. Davis, 13 December 1905, Public Works Committee on scheme of sewerage for the municipality of Drummoyne, op cit, p.2.
96 Parliamentary Standing Committee on Public Works, Report together with evidence on amplification and improvement of the Water Supply of the city of Sydney and environs, NSWLA, 1910.
97 Evidence of W. J. Hanna, 4 Jan 1904, ibid, p.2-3.
Drummoyne should again be seen as an extension of the already existing system.

The increasing role of the MBWSS was therefore a consequence of the recognition by the DPW, however begrudgingly, that much of the work in the construction of a water supply and sewerage system had already been completed. The work of the MBWSS was chiefly that of maintenance, rather than public works. The tasks which the MBWSS insisted it was responsible for was therefore only an 'amplification' of what were public works, or at least this was how the DPW could perceive it.

The MBWSS was finally given full autonomy in matters of construction in 1924 under the guise of Metropolitan Water Sewerage and Drainage Board. The transfer of powers was pre-empted by increasing representations to the various Secretaries for Public Works by the MBWSS for additional pipelines and mains to be built as a matter of urgency, and the expressed willingness of the MBWSS to carry them out.98 This did not result in the immediate transfer of all major works of construction to the new Board, as the building of the North Sydney system was not transferred to it until 1928. The significance of the the 1924 legislation was that the Board was granted full fiscal autonomy, and it was therefore no longer dependent upon the generosity of the treasury as before. The way was open to it to plan and construct as it saw fit.

The loss of powers of the DPW to the MBWSS coincided with the steady loss of powers of the senior officers and engineers within the DPW. The department became increasingly centralised as a result of the Public Service Act 1895, and the senior officers increasingly subject to the Under-Secretary. Furthermore, the DPW relinquished much of its authority to its political masters, and this caused it to fragment. The MWSDB was a consequence of the fragmentation, and like the Harbour Trust, it had a purely ad hoc purpose, and was subject only to the authority of Parliament. It bore another similarity to the Harbour Trust in that it owed little to the local government body from which it originated, the Sydney Corporation, or to the DPW. One way or another central authority remained supreme.

The Improvement of Sydney 1905-16.

Apart from the Department for Public Works, the Sydney Harbour Trust, and the Railway Commissioners, the Sydney Corporation also reshaped the city. Beginning in 1906, the Sydney Corporation resumed large areas in the city for the purpose of remodelling them. The 'improvement' of Sydney, as the process of resumptions and remodelling was known, was intended to raise the rateable valuation of the city. The programme of improvements was championed by the City Council also as a means of removing insanitary areas from the city and it received considerable support from the public, many of whom feared a renewed outbreak of the bubonic plague.

The improvement of Sydney by the City Council was inspired to a large extent by the effect of the new technology. The improvements began in 1906 just after the Sydney Corporation began to supply electricity to the city. The municipal electricity supply encouraged investment in property and building in the city and in turn this produced an upward pressure upon the value of some of the land in the city.

Largely in response to the work of the City Council, and the work of the other statutory authorities upon the physical structure of the city, the Government appointed the Royal Commission for the Improvement of Sydney and its suburbs in 1908. The Government hoped that the Royal Commission would produce some form of 'plan', whereby the work of the City Council and the other relevant statutory authorities would be co-ordinated and made complementary to each other. However, the Royal Commission was unable, and unwilling, to produce a formal 'plan'. Instead it issued a broad set of recommendations under a variety of headings, including beautification, street improvements, and the city and suburban railway.

The introduction of electricity.

The process of 'improvement' began with the opening of the Pyrmont Power Station in 1904. The Central Power House, with five sub-stations, lit up all the major streets in Sydney in 1904 with the incandescent arc lamps invented by Thomas Edison. The power house was supposedly fire
proof, and contained steel and concrete floors. Two chimneys, one 200 feet high and the other 217 feet high, rose up from the building overlooking Darling Harbour. The energy was coal generated, using Babcock and Wilcox boilers. From Pyrmont, the electricity was supplied to sub-stations at Town Hall, Lang Park and Hyde Park. In 1910, the Central Power House was extended and a turbine room added to it. The operation was highly successful, and sub-stations were established in the suburbs, including Marrickville, Homebush, Drummoyne and Waterloo. By 1913 there were forty seven sub-stations, and such was the demand for electricity from the Central Power House that two 'step-up' transformers were installed in it in 1912 to increase the voltage for more outlying sub-stations.¹

A significant effect of electricity was that it contributed to a rise in the height of buildings. Electricity swept aside traditional obstacles to high buildings because it could be used to provide a relatively safe form of heating and lighting. Other methods of heating and lighting, including gas, were hazardous because of fire. Electricity also made possible elevators and telephones, both of which made communications within large buildings easier. The number of telephones, many of which were installed in businesses in Sydney rose from 12,197 in 1900, to 18,373 in 1905, and soared to 48,686 by 1912.² Commerce seized upon the opportunities presented by the new energy supply. Almost from the moment electricity was available, retailers and merchants adopted it for their use. New retail stores were opened by Anthony Hordern in 1905, Marcus Clarke and Grace Brothers in 1906, Mark Foys in 1909, and Farmers in 1910. Offices, factories, shops and warehouses also expanded in numbers and in size. In 1907 it was marvelled how in recent years 'half Sydney had been rebuilt, the buildings in the principal streets have been raised several storeys, and the volume of vehicular and passenger traffic has swollen enormously'. Excluding public buildings the 6503 buildings completed in 1911, in Sydney, at a cost of 6 million pounds, 'constituted a record'.³

² Max Neutze, Urban Development in Australia, Allen and Unwin, Sydney, 1977, p. 34.
The Improvement of Sydney.

The City Council, which was partly responsible for these developments because of the introduction of electricity, was determined to make the most of the building boom. It encouraged the construction of new and handsome buildings on the basis of their superior value. To achieve this, it was necessary for the City Council to intervene in the property market. It removed some of the areas which were low in value in the expectation that they would be replaced with more valuable buildings. It also reconstructed some of the thoroughfares to ensure that poorly designed streets would not be an impediment to the business life of the city. Usually, the intervention of the City Council was guided by the reports of the City Surveyor. These reports made obvious the disparities in rateable valuation between different parts of the city, and they provided expert advice on the trend of property values in the city. The intervention of the City Council in the way of 'improvements' began with the election of Allen Taylor to Mayor of Sydney in 1905. Taylor, who had represented Pyrmont Ward in the City Council since 1902, and who was made Lord Mayor on a number of occasions before the Great War, was a consistent advocate of improvements, so much so, that his name was virtually synonymous with those carried out by the City Council up to 1912.4

The first major resumptions undertaken by the City Council with a view to 'improvements' were of the insanitary areas of Athlone Place and Wexford Street. Taylor proposed to the City Council in January 1906 that the areas be valued by the estate agents, Richardson and Wrench, and Raine and Horne.5 In March 1906, Athlone Place was resumed at an eventual cost of £126,896 and some demolitions began by June.6 In the same month, Wexford Street was resumed. A number of other smaller resumptions were made subsequently in the latter area, bringing the total cost of the resumption to £230,492.7 By 1909, the whole of Athlone Place, at the head of Darling Harbour, had been removed, and new

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4 Taylor first entered municipal life at Annandale in 1894 where he was a Councillor for eight years and a mayor for five years. He was Mayor of Sydney 1905-6, and Lord Mayor of Sydney 1904-12. Sydney City Council Library Newscuttings.
5 Minute by Mayor, 23 Jan 1906, PMCCS, 1906
6 Town Clerk's report, 1907, p. 204; 1920, Sydney City Council Archives.
7 Ibid, 1908, p.207; ibid.
CITY COUNCIL'S IMPROVEMENT SCHEME.

The shaded areas represent lands resumed by the City Council for improvement purposes. The blank spaces indicate areas purchased by the Council.

buildings, especially commercial and industrial concerns, had appeared where there were once slums. The remodelling of Wexford Street did not occur quite so suddenly, but it eventually resulted in the formation of a new thoroughfare from Oxford Street to Goulburn Street, known as Wentworth Avenue. The reconstruction of these areas, therefore, fulfilled the dual function of removing unwanted slums from the city, and contributing to the 'improvement' of the city.

In October 1906, Taylor proposed what was eventually to become the most ambitious project undertaken by the City Council, the widening of Oxford Street. Taylor proposed to widen Oxford Street by 34 feet in the portion between Bourke Street and College Street by resuming the eastern side of it. By 1906, Oxford Street had become the chief artery of traffic from the city to the Eastern Suburbs. The amount of traffic using the street greatly increased after the closure of Devonshire Street to make way for the Central Railway Station. Traffic from Darling Harbour to the Eastern Suburbs previously made use of Devonshire Street but now it was diverted to Oxford Street. Along with the increasing passage of trams through the street, traffic became more and more congested by the day. 'The mere casual stoppage of a van or a cab in the ordinary course of business', stated the Town Clerk, 'occasioned general dislocation of traffic.'

Heavy traffic was prohibited from the street between 8 a.m. and 6.30 p.m., forcing the large carts and drays into the side-streets, which in turn became congested during the day. The problem had been recognised for some time but unlike his predecessors, Taylor was not deterred by 'the magnitude of the scheme of improvement involved'. He had the enthusiastic support of the City Surveyor, who argued that the traffic had in fact, made the street into something of a 'death-trap.' The Government hoped that the traffic from Darling Harbour to the Eastern Suburbs would run more smoothly when the widened Oxford Street was complemented by the widening and extension of Wexford Street from Goulburn Street to College Street.

Taylor suggested raising the necessary finances for the widening from three sources. The costs should be shared equally by the Sydney Corporation, the Government and the property owners on Oxford Street. Taylor believed that the value of the frontage of properties on the street

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10 Town Clerk's Report, 1906, *PMCCS*, p. 146
would be greatly enhanced by the widening, and he proposed levying a betterment tax on these properties to the tune of two pounds ten shillings per foot. The Government would also be expected to pay for a third of the costs:

...as the situation of Oxford Street as the carrier of a large tram traffic and the neck connecting the eastern suburbs with the City, rendered the scheme as much a State as a City work.11

Finally, the City Council would be expected to pay for another third of the costs. However, Taylor believed that the profits made by the city's electricity supply would more than cover them as he expected that the improvements would provide additional customers to the electricity supply and this in turn would contribute to the eventual profitability of the scheme.12

Taylor's efforts to raise revenue for the project were initially unsuccessful. Although the Premier, Joseph Carruthers, expressed interest in the idea, the Government did not supply any money for the project. The idea of a 'betterment tax' was dropped also when it was pointed out that shopkeepers were unlikely to benefit from the widening. According to Alderman Thomas Hughes the most suitable width for shops was about 66 feet because 'the more people crammed past them, the higher their values. They had Pitt and George Streets to prove it.'13 The widening of Oxford Street was postponed until a satisfactory system of financing could be found.

In the meantime, Alderman R.D. Meagher called for the establishment of an Advisory Board for improvements in the city in a motion submitted to the City Council in June 1907.14 Meagher had been dissatisfied with the method chosen for the improvements. He believed that comprehensive resumptions should take place in order to make full use of the rise in rateable valuation. In the case of Oxford Street, Meagher proposed that the City Council should also resume Bourke and Burton Streets so that 'the increased increment by virtue of the Oxford Street resumptions and the proposed Bellevue Hill tramway should be reaped by the Council.'15

11 Ibid, p. 145.
12 Ibid
13 SMH, 18 Sept 1909, Sydney City Council Library newscuttings.
14 Town Clerk's Report, PMCCS, 1907, op. cit, p.99.
15 Ibid, 1908, p. 96.
Meagher suggested that the Advisory Board should consist of 12 persons from such bodies as the Chambers of Commerce, the Trade's Council and Architectural institutes, in order to draw up a scheme for Sydney. According to Meagher the Advisory Board was:

...a recognition of the fact that Sydney was laid out without definite scheme, design or objective, thus focussing the evils which have confronted older cities of the world...\(^{16}\)

There was, however, another significant factor in Meagher's proposal. The improvements which the City Council had recently embarked upon, under the auspices of Allen Taylor, were heavily influenced by the reports of the City Surveyor. The City Council relied upon the valuations supplied by the City Surveyor for the approval of improvements and the programme of improvements was therefore almost entirely in the hands of one individual.\(^{17}\) Meagher believed that an Improvement Advisory Board was necessary to offset, or perhaps complement the reports of the City Surveyor. In this way an Advisory Board would protect the City Council from what Meagher called 'the absolute fallacy' of the City Surveyor.

An Advisory Board had already been proposed by the Institute of Architects of New South Wales in 1906, but it was not given much attention. Likewise in 1907, Meagher's motion was rejected, although it was discussed in a favourable light. The councillors did not appear to have felt the same urgency with the question of a city scheme as did Meagher. The City Surveyor had in fact been instructed by the Works Committee early in 1907 to draw up a scheme for improvement 'so that the council might have something tangible to go upon.'\(^{18}\) The matter, however, was allowed to drop and the scheme never materialised.

**The Royal Commission for the Improvement of Sydney.**

The demand for an improvement scheme, nevertheless, was gathering momentum elsewhere. In December 1907, E.W O'Sullivan asked the new Premier, Charles Wade, in the Legislative Assembly if the Government


\(^{17}\) *PMCCS*, 1907, p. 99.

intended to consider the appointment of a Royal Commission 'to inquire and report upon the best means of improving and ornamenting the City of Sydney and its environs'. Wade replied that the Government would indeed consider the matter.\(^{19}\)

A few days later, John Sulman, one of the leading architects in Sydney published a series of articles in the *Daily Telegraph* on the improvement of the city. The articles dealt with the history of planning and of improvements in the city. Sulman went on to make his own suggestions for the future, including a connection to the North Shore, the city railway, and street improvements. His final article dealt with the finances of improvement. The articles attracted considerable attention, and Arthur Griffith, the Secretary for Public Works approached Sulman with a view to drawing up a scheme of improvement. Griffith suggested establishing a Royal Commission for this purpose, to consist of Sulman, his friend, Colonel Walter Vernon, and an engineer from the DPW. The Royal Commission would therefore consist of a panel of 'experts' to include two architects and one engineer. There were, however, other parties interested in the improvements. According to Sulman, when the plan became known:

> The politicians and local authorities scenting limelight brought so much pressure to bear on the Government that the original idea was abandoned and a large body representing various business and official interests was appointed.\(^{20}\)

One of the interested bodies which 'scented limelight' included the City Council. In contrast to the general lethargy it displayed on the question of an improvement board, it was favourable to the idea of a Royal Commission. Thomas Hughes, the Lord Mayor, submitted a minute in late 1907 calling for a Royal Commission on Improvements, and on 14 January 1908 the City Council agreed to send a deputation to Premier Wade to discuss the idea. The deputation pointed out that the City Council was endeavouring to improve the city, in contrast to the suburbs where:

> ...the population was literally flowing over without method or system as regards the inhabited and inhabitable area, and in the suburbs, which

were fast hemming the City in, there were streets whose meanness, narrowness and squalor would really surprise anyone who visited them.21

According to the City Council it was a leader in improvements, and it could not be overlooked if and when a Royal Commission was appointed. The Royal Commission appointed by Wade in February 1908 therefore consisted of more than just architects and engineers. Pride of place was given to the Lord Mayor, Thomas Hughes, who was made Chairman of the Commission. Other members included James Wall, President of the Master Builder's Association; Ernest A. Scott, president of the Institute of Architects of NSW; James McGowen, M.L.A, leader of the opposition, the Parliamentary Labour Party; Sir James Graham, the leader of the Municipal Reform Party, representing the Government; E.W.O'Sullivan, M.L.A, and vice-president of the Municipal Association: Edmund Fosbery, MLC, former Inspector-General of Police, who represented vehicular interests; Henry Gorman, of Messrs Hardie and Gorman Real Estate Agents; Robert Hickson, President of the Harbour Trust; and Norman Selfe, civil engineer.22 The Royal Commission was therefore dominated by politicians. There were four politicians, two engineers, including the President of the Sydney Harbour Trust, and just one architect. This was a completely different commission to that originally broached to Sulman, who had been omitted from the final version as well as Vernon. Far from being dominated by architects, the Royal Commission was dominated by politicians. According to Sulman, Vernon was so bitterly disappointed that he threatened not to give any evidence to the Royal Commission. He was persuaded to give evidence only by Sulman who, despite being omitted from the commission, had apparently 'swallowed the rebuff.'23

The Commission was long and exhaustive. Beginning in May 1908 it took evidence from 40 witnesses and it did not issue its final report until June 1909. Despite the comprehensive enquiry, the commissioners rejected the possibility of a grand metropolitan 'scheme'. A 'symmetrical scheme' for Sydney, they believed, could not be carried out without 'great sacrifice on the part of the citizens'.24 The hilly contours of Sydney

21 Town Clerk's Report, PMCCS, 1908.
23 ADB file, John Sulman, Town Planning Recollections, p. 5.
24 Royal Commission for Improvement, p. xxi.
and the irregular pattern of the foreshores militated against it. Even in the city, a formal plan could not be carried out 'except at unreasonable and unjustifiable cost'. Instead the commissioners believed that the Art Commission established in New York in 1898 was more suitable for Sydney. The Art Commission had the power of veto over the design of the largest buildings proposed for the city. By 1907 some three-quarters of the 300 submissions made to this commission had been altered. The Royal Commissioners noted that other leading American cities, such as Philadelphia were 'about to follow New York's example'.

The rejection of a 'plan' and of the radical reconstruction synonymous with Haussmann in Paris, was supported by a number of witnesses to the commission. In his statement, Walter Vernon emphasised the difficulties confronting the formation of a plan for Sydney. In particular there was the problem of the topography of Sydney, and the peculiar lay-out and congestion of the city. 'None of the recognised principles for the laying out of a large city' he stated, 'can be adopted in their entirety'. Vernon thought that Sydney could better emulate Paris by constructing roads outside, or around, the most dense parts of the city in order to draw traffic away from them. He warned the Royal Commission about the tendency to widen the main streets of the city, including George Street and Pitt Street, both of which were proposed to be widened by the City Surveyor. Wide streets, he claimed, would only lead to increased traffic and subsequently congestion.

John Barlow, an architect, and a member of the earlier City Improvement Advisory Board, formed in 1900 to consider ways of reconstructing the 'Rock", also criticised the notion of wide streets. He confirmed Vernon's view that wide streets would only encourage more traffic. They were also inconvenient to pedestrians because of the danger and difficulty of crossing them in heavy traffic. Wide streets also encouraged wind. From an architectural point of view, wide streets highlighted deficiencies in the irregular heights of buildings that would not be apparent in narrow streets. In Paris the effect of this phenomenon on building styles was so marked that:

...it has been found necessary not only to enforce a more or less uniform architectural style, but even the heights of the buildings are regulated by

26 Ibid, p. xxi.
27 Vernon, ibid, 5 Aug 1908, p. 77.
law. This uniformity lends a certain dignity to the boulevards but it makes the architecture appear tame and monotonous.28

Barlow suggested an 'intelligent and comprehensive system of remodelling', which could be enforced on a step by step basis over a long period. This had been done in Paris, and was in fact a feature of Haussmann's reconstruction of the city. Resumptions were made as the opportunities arose. All this could be done without the dereliction of large areas, often at great expense. It was true that this would require an already established town plan, but this plan need not be 'symmetrical'. Barlow admitted that 'half our city's charm lies in the crookedness of her streets, with their pleasing possibilities in the way of unexpected architectural effect.'29

The Royal Commission did not propose any such long-term plan, or a grand scheme of reconstruction. Instead the Improvement Commission adopted, and often amplified, the more specific ideas of the witnesses. It proposed widening certain streets, beautifying certain areas, the adoption of new building regulations, but it did not attempt to radically reconstruct Sydney as a whole. The Royal Commission had modest intentions and it singled out only three areas for radical reconstruction, Circular Quay, the Central Station, and the 'Rocks'. All these areas had already been, or were about to be, transformed by various government departments, and the recommendations of the Royal Commission were in many respects in response to their activities.

**Beautification.**

The spectre of Haussmann was first raised by Charles Reade, an early Town Planning advocate who arrived from England in 1912. Reade asserted in 1917 that the idea of the commission was to 'thoroughly "Haussmannise" the existing city of Sydney apparently with no clear realisation at the time of the economic or sociological consequences involved.'30 This rather misleading criticism was repeated by the authors of the County of Cumberland Planning scheme in 1945:

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Earlier attempts to plan Sydney had failed because the task implied only a new layout of streets and of monumental buildings, imposing vistas and decorative parks. Like Haussmann's Paris, Sydney was to look magnificent while the problems of economic grouping were all untouched... Most plans were too ambitious or related to the demands of commerce and the glorification of the City and its setting rather than to the needs of the people.\(^31\)

While there is some substance to the criticism, it is overstated. The preoccupation with monumentalism was evident only in a minority of witnesses about specific sites, especially Norman Selfe, John Sulman, and John D. Fitzgerald. Paris certainly inspired both Fitzgerald and Sulman. According to Fitzgerald Paris was a 'wonder city', and the 'most beautifully ornate and spacious city in the whole world'.\(^32\) Sulman first visited the city in 1873 as a student, and thereafter made several visits to Paris and other major European cities before he migrated to Australia.\(^33\) Yet Fitzgerald was most prominently in favour of planning as a means of ameliorating poor living conditions. He did not apparently see a contradiction between a radical reconstruction of the city with a view to ornamentation, and the improvement of the living conditions of its citizens. What the critics of the commission overlooked was the context in which it took place and the intention lying behind its formation. Paris was not the only city that experienced reconstruction. By 1909 many cities in the United States of America were also contemplating reconstruction, including Chicago and San Francisco, often on a scale far greater than that envisaged for Sydney. In 1910 it was noted by one observer of the work of the City Council's improvements that 'side by side with the march of business life in all the great cities there is a striving after the beautiful and the ideal'.\(^34\) Indeed Sulman contrasted the ideas he set out in the articles for the *Daily Telegraph* with other more radical schemes then being considered. When he wrote the articles, Daniel Burnham's plan of remodelling for San Francisco lay on his desk. The plan, Sulman wrote, was a very fine one, 'but far more comprehensive than anything I have dared to suggest, although San Francisco is only about the same size as Sydney'.\(^35\)

\(^{32}\) Ibid, p.4.
\(^{33}\) ADB files, John Sulman, Town Planning Recollections, p.1.
\(^{34}\) *SMH*, 7 December 1910, p. 14.
\(^{35}\) John Sulman, *The Improvement of Sydney*, XXX, Appendix b, part. 4, p. 228.

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What the critics overlooked was the extent of the impact of the new technology. The concern for the beautification of Circular Quay was determined by the knowledge that it was likely that a city railway would led to the construction of a station at Circular Quay to cater for the ferry traffic. The beautification of Circular Quay was in fact a response to the city railway. The Commissioners reported that the Quay had the potential to be 'as splendid a water-front as any to be found in the world.'

Consequently they suggested that the buildings facing the Quay should be taken back at least some 20 or 30 metres, to 'add symmetry as well as spaciousness to the area'. They believed that the wool stores on the eastern side of the Quay ought to be remodelled and 'only buildings of some architectural pretensions should be allowed on the water-front'.

Ironically the Royal Commission also recommended the construction of an overhead railway station at Circular Quay. A number of witnesses suggested placing the railway station underground to remove it from view but this was not accepted. It was hard to see how the erection of such a railway station could be reconciled with the beautification of the area despite the recommendation that the construction of the station should be carried out 'on ornamental lines'. Two Commissioners, Robert Hickson and James McGowen dissented from the recommendation. Hickson noted that the station would 'be a great eyesore, and shut out the view of the Cove and the North Sydney heights from the Quay'.

The driving force behind the recommendation to build an overhead railway station was Norman Selfe. He had suggested building the overhead railway station on an 'artistic design' to stretch the whole way across Circular Quay. Such a building, he maintained, would 'lend dignity and character to the water front'. The building would house ferry offices, restaurants and cafes. Passengers from either ferries or the railways could change to either a ferry or train without descending to the street.

Selfe's vision of the area was strongly challenged by John Sulman. His scheme of beautification for Circular Quay involved constructing a wide

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36 *Royal Commission for Improvement*, p.xxv.
38 *Ibid*, p. xxxix. As President of the Harbour Trust, Hickson was especially sensitive to the encroachments upon the harbour by the station. Hickson estimated that the sea-wall would have to be brought 150 feet into the harbour to make way for the station.
ROYAL COMMISSION ON SYDNEY IMPROVEMENT.

PLAN No. 30.

SKETCH ILLUSTRATING MR. JOHN SULMAN’S PROPOSED CENTRAL AVENUE AND REMODELLING OF CIRCULAR QUAY.
avenue 270 feet wide from King Street to Circular Quay. The scheme
involved large scale resumptions from the Quay up to King Street, but
apart from ornamentation, the resumptions had the practical advantage
of providing an easy access to Elizabeth Street from Circular Quay. It had
been pointed out by several witnesses that Elizabeth Street was ideally
placed to form the main artery for traffic between the harbour and
Botany Bay.40 For this reason, the commissioners recommended widening
Elizabeth Street to 100 feet throughout its entire length. They did not,
however accept Sulman's proposals for an avenue from the termination
of Elizabeth Street to Circular Quay. They believed the resumptions
involved would be too costly, and render the scheme 'impracticable'.41

Instead, the commissioners adopted a rival scheme presented by
Norman Selfe. This involved extending Elizabeth Street in a great sweep
by way of a curve through Bligh, O'Connell and Pitt Streets. According to
Sulman, Selfe presented the scheme as he was 'apparently jealous of the
prominent place' Sulman had taken in the enquiry.42 Sulman claimed
that Selfe's scheme had none of the advantages of his proposals, although
they would be equally destructive of property. In any case, Selfe's
extension was never carried out as it would have been extremely
expensive.

Both men presented rival schemes for the remodelling of the Central
Station area. The Central Station, one of the largest buildings in the city,
was still in the course of completion when the enquiry was held, but it
was expected that it would eventually be 'one of the finest architectural
features of the city'.43 The area around it needed to be beautified to
accord with the station's grandeur. The Commissioners noted that the
area was the main 'entrance' to the city for passengers by rail, and it
therefore demanded 'special attention'.44

John Sulman's proposals for the area involved the construction of two
circular roadways on top of one another around Belmore Park. Both
would be connected with the station portico. Sulman intended Pitt Street
and Castlereagh Street to join the lower circle, while the newly widened

40 J.D. Fitzgerald was among those who suggested extending Elizabeth Street to
Botany Bay. It would 'open an avenue', he said, 'Paris is doing it, Berlin has done it,
Vienna has done it'. Royal Commission for Improvement, 1909, 28 Oct 1908, p. 123.
41 Ibid, p. xlii.
42 Sulman Papers. Town Planning Recollections, ADB files.
43 Royal Commission for Improvement, p. xxxvi.
44 Ibid.
Wexford and Campbell Streets would join, by viaducts, a raised Elizabeth Street which would run into the upper circle. Inside this circle, tall 'handsome' buildings, seven to eight storeys high, of uniform design and in keeping with the Central Railway Station, would screen the roadways from view.45

These proposals, however, were rejected in favour of the more simple scheme of Norman Selfe. Instead of the circular roadways, Selfe suggested raising Elizabeth Street and Pitt Street to run up two sides of Central Station. A viaduct along Eddy Avenue would connect both streets to one another. Belmore Park would be raised to the level of both Elizabeth and Pitt Streets up to the station. As well as being of simpler design, the scheme was also less costly and resumptions were kept to a minimum. When the Commissioners recommended the scheme, they expressed reservations about the viaducts because their appearance might be objectionable. On the other hand, they expected that the whole area would be regraded and levelled in line with the remodelling.46 As in the case of the beautification schemes for Circular Quay, the proposals of both Sulman and Selfe for Central Station were never implemented. They were perhaps too grandiose, but more significantly, they were not integrated with the campaign of improvement of the Sydney Corporation.

The widening of Oxford and William Streets.

When the Improvement Commission issued its report in June 1909, Allen Taylor was again Lord Mayor of Sydney. Before his election to the Lord Mayoralty in January 1909, he had spent some time abroad in Europe where he observed municipal administration. He arrived back in Sydney 'fortified with a knowledge of all that is best in the civic centres overseas', and this knowledge was apparently a significant factor behind his unanimous election to the Lord Mayoralty.47 Upon his election Taylor immediately disclosed what areas he thought needed to be remodelled at an early date, including Duke Street, parts of Chippendale, and Regent Street. Furthermore, he stated that Oxford Street should be continued as far as Barcom Street, the boundary line of the city and Paddington. He

46 Ibid.
47 SMH, 1 Jan 1909, Sydney City Council Newscuttings.
ROYAL COMMISSION ON SYDNEY IMPROVEMENT.

PLAN NO. 21.

(S. 6 IN EVIDENCE.)

SKETCH ILLUST.ING MR. NOHMAN SELFE'S PROPOSED TREATMENT OF BELMORG PARK, WITH EXTENSION OF CITY RAILWAY FROM EASTERN SIDE OF TERMINUS.
also suggested widening Flinders Street at least as far as Moore Park.\textsuperscript{48} He had worked out a comprehensive scheme of remodelling for the slums of the city, saying that the German treatment of slum areas was especially apt as a model for Sydney.\textsuperscript{49}

Taylor told the City Council that it should wait for the Improvement Commission to issue its final report before it began a new improvement programme. He did not believe, however, that the City Council should be bound to its recommendations although he expected 'to receive some valuable suggestions from it'.\textsuperscript{50} The work of the City Council must continue, regardless of what the Improvement Commission might say. Indeed he suggested that the widening of Oxford Street should proceed immediately.

In any case, the commissioners agreed that Oxford Street ought to be widened as far as Darlinghurst Road, a little short of the city boundary. After the Royal Commission issued its report in June 1909 the City Council resumed much of the northern side of Oxford Street and erected new structures on the new alignment. Work continued over the following years when the northern side of the street was resumed as far as Barcom Street. The widening involved the demolition of 125 houses, the total cost of resumptions came to $400,177, and the cost of the roadworks was $127,706.\textsuperscript{51} Although an enormous expense was involved in the operation, the \textit{Daily Telegraph} calculated that it was, in fact, profitable. The rents of the new properties owned by the City Council amounted to $10,000 by 1911, while the annual charges came to $14,000.\textsuperscript{52} Any loss accruing to the work would probably be made up by the expected increase in the rates. Taken as a whole, the exercise was highly successful from the point of view of the City Council.

The widening of Oxford Street was an idea of the City Council that was adopted by the Improvement Commission. The implementation of an idea of the Improvement Commission adopted by the City Council occurred with the widening of William Street in 1916. The street was the main artery for traffic to the northern end of the Eastern Suburbs, or the 'foreshores' of the Eastern Suburbs. Traffic on the street was hindered by steep grades and a number of witnesses made suggestions to ameliorate

\begin{footnotes}
\item[48] \textit{DT}, 7 Jan 1909, Ibid.
\item[49] SMH, op.cit.
\item[50] Ibid.
\item[51] Town Clerk's report, 1917, p.110: 1918, p.124, City of Sydney Council Archives.
\item[52] DT, 22 Nov 1910, op. cit.
\end{footnotes}
the problem. John Sulman suggested widening the street to a 100 feet, then driving a tunnel through Darlinghurst Hill with a lowered street. John Barlow favoured realigning the street in order to give it a width of 90 feet. He suggested lowering the street at the Darlinghurst end by five and a half feet to give a regular, though steep grade to Forbes Street. He thought that a regular grade from Park Street could then be achieved by regrading the street near College Street.53

To a large extent the concerns of these witnesses to provide an enlarged artery to the 'foreshores' of the Eastern Suburbs was obviated by a recommendation to construct a new Cathedral Street. The idea was presented by William Greenwood who suggested building a viaduct along St. Mary's Road to give a better grade to College Street. The eastern end of Cathedral Street would be taken by tunnel to Roslyn Gardens at King's Cross, and then over practically vacant land to the New South Head Road near the power-house at Rushcutters' Bay. It was hoped that the construction would lead to the development of:

...the lower part of Woolloomooloo and meet the traffic requirements both of this neighbourhood and of the eastern foreshore suburbs for some years to come.54

For this reason the Commissioners favoured a less drastic treatment of William Street than some of the witnesses. The Commissioners suggested widening the street from Bourke Street to Victoria Street, and then constructing a raised road between these two points. The rest of William Street could be regraded up to College Street. In combination with the new Cathedral Street, the alterations made to William Street would contribute to the development of the Woolloomooloo area as an 'industrial portion' of the city:

Shut in on three sides by hills its progress as a shopping centre has, so far, been retarded for want of easy grades of traffic.55

The eventual widening of William Street by the City Council involved a far more radical scheme of resumptions and improvements than that recommended by the Royal Commission. The first proposal to widen

53 Royal Commission for Improvement, pp.xli-x.l.
54 Ibid, p.xliv.
55 Ibid, p.l.
William Street appeared in a motion to the City Council in August 1912. No action seems to have been taken until 1916 when it was again proposed to widen it. The street was only 41 feet wide from kerb to kerb although a double tram line was carried through most of it. According to the Lord Mayor, R. D. Meagher, the necessity for widening was:

...apparent to anyone taking the slightest interest in Civic progress and development, and was admittedly beyond question.\(^{56}\)

Although Meagher confessed to being somewhat 'chary' about resuming the street, he stated that once it was decided to resume any property, the resumptions ought to be 'well-defined' and carried out comprehensively. The fragmented resumptions of the past, he maintained, led to increased land values in the area around them:

The inevitable consequence has been that, whenever an extension of a resumed area has subsequently been decided upon, the Council has necessarily had to pay the enhanced value arising out of its own act caused by restricted vision and lack of comprehensive outlook in undertaking an isolated resumption in the first place.\(^{57}\)

Therefore Meagher proposed widening the street 100 feet all the way from King's Cross, along Park Street, up Elizabeth Street on the far side of Hyde Park. (The next section from Park Street to George Street was expected to be very expensive and it was decided to leave the widening of this portion of Park Street until later). Although Meagher declared his respect for the Improvement Commission, he had overruled it in favour of what he called 'outright resumption' The major concession to the Improvement Commission was the decision to construct a raised road up to Darlinghurst Heights in order to provide an easier grade.

The William Street widening as it eventually materialised was more the product of the City Council than the Improvement Commission. It was intended by the Royal Commission for the widening to support the new Cathedral Street in order to provide easier access to and from Woolloomooloo and the Eastern Suburbs. Thus it would help relieve the traffic congestion in the city. The enormous rewidening involved in

\(^{56}\) Town Clerk's Report, op.cit, 1916, p.72.
\(^{57}\) Ibid, p.74.
Meagher’s scheme, however, only contributed to a general increase in traffic in the city. Meagher, and the City Council at large, did not appear to have heeded the advice of Barlow and Vernon that wide streets into the heart of the city would only increase the traffic. The improvements of the City Council, therefore, were based on entirely different priorities to the recommendations of the Improvement Commission.

As in the case of Oxford Street, there was an enormous cost involved in the reconstruction of William Street. The resumptions alone cost £281,307. Again, the City Council attempted to get the Government to pay for at least some of the work. It refused and the reply of the Under-Secretary of the Department of Finance and Trade to the request of the City Council is a particularly revealing. The Under-Secretary stated that these widenings were carried out:

To provide for the constant increase in the business done within the City, which fact forces (a) a relative increase in the size of buildings; (b) a constant increase in the number of people occupying each building; and (c) a resultant street congestion to the foregoing.58

This interpretation of the improvements was a devastating reversal of the stated reasons for them by Town Hall. The necessity for improvements had always been ascribed to the increasing traffic and congestion in the city. The Government, however, believed that the congestion was a result of increased commercial activity. It believed that the great increase in the tramlines were merely a corollary of the changes that had taken place in the business practices in the city. The City Council were encouraging the transformation of business practices, and to that extent, they were responsible for the increase in the city’s traffic. This way, the cost of street widenings could never be underwritten by the Government because it was due to the activities of the City Council that the necessity arose for them.

**The City and Suburban Railway.**

The notion that the Improvement Commission was preoccupied with monumentalism was repeated more recently by Leonie Sandercock. The grandiose strain was attributed by Sandercock to the fact that ten of the

principal witnesses to the commission were engineers and three were architects'. This criticism overlooks the function of the Royal Commission. The aim of the commissioners was stated quite clearly in their report:

Our aim had been to ascertain how, at a reasonable expenditure, the transit facilities of Sydney and its suburbs may be improved, while at the same time adding character and dignity to a city in harmony with its situation on one of the finest harbour sites in the world.

The intensity of the debate on the City Railway had been overlooked by Sandercock. The Royal Commission on Communication had been appointed by the Government at the same time as the Royal Commission for Improvement in May 1908, and the two enquiries ought to be seen as related enquiries about the same issue, the transit system. The Royal Commission on Communication was intended to examine the connection to the North Shore on its merits, while the Royal Commission for Improvement was expected to outline a railway plan that was most suitable for the city. Henry Deane, John Sulman, Walter Vernon, William Greenwood, William Hutchinson, Norman Selfe, and Thomas Johnson all gave evidence on the city railway. The city and suburban railway was, in fact, 'the most urgent need of Sydney at the present time', according to the commissioners. The increase in the population, the development of distant suburbs, and tramway congestion all demanded a city, and electric, railway.

The railway scheme recommended by the Improvement Commission was presented by the Chief Railway Commissioner in April 1909, after the Communication Commission had issued its report the previous month. Johnson had given evidence to the Improvement Commission in June 1908, but he did not yet present a railway scheme. The Railway Commissioners believed that the most significant question to be resolved was whether the city railway was to be 'high' or 'low' level. A tunnel connection would obviously demand a low level, that is a deep underground railway. On the other hand, a bridge would persuade the railway designers to outline a railway that although underground, was only just below the surface. Johnson therefore withheld any definite

59 Leonie Sandercock, Cities for Sale, property, politics and urban planning in Australia, M.U.P. 1975, p. 18
60 Royal Commission for Improvement, p.xxi.
proposal to the Royal Commission. The day before he testified to the Improvement Commission in 1908, he gave evidence to the Communication Commission. On that occasion, he also refrained from giving any definite proposal of his own for either a connection or a railway.

Nevertheless, Johnson made it clear that he favoured an Eastern Suburbs railway, of a cut-and-cover type.\textsuperscript{61} He also favoured a railway line to serve the Balmain district and the suburbs to the west of it. He told the Improvement Commission that there was already a scheme for a goods railway to Darling Harbour by way of Glebe Island. As far as the North Shore connection was concerned he admitted that he preferred a bridge, for social, as much as technical reasons. He acknowledged that from the railway point of view, a bridge was suitable for the 'high-level' city railway scheme that he preferred, and there were other reasons to consider:

\begin{quote}
If you would like to consider the sentimental aspect, such a bridge would command a magnificent view of your harbour, and then I think that, in a climate such as this, the people would much prefer crossing a bridge to passing through a tunnel.\textsuperscript{62}
\end{quote}

The Railway Commissioners were lying in wait for a decision on the connection to the North Shore. More than anything else they feared the growth of the tramway system. Johnson had testified that trams were more heavily used in Sydney than perhaps any other city in the world. In Easter Monday 1908, some three quarters of a million passengers travelled on the trams, one and a half times the population of the metropolitan area. He attributed the tendency to use the trams instead of walking to the heat. Johnson believed that any extension of this network would delay the electrification of the railways, and ultimately, the urban railways because the Government would be loath to approve the enormous expenditure involved in the city railways if it thought that the trams were already carrying out the service offered by the railways.

The Railway Commissioners were therefore disappointed by the recommendation of the Communication Commission to build a tramway subway across the harbour before any other type of connection. To avoid the construction of the tramway subway Johnson presented a scheme of

\textsuperscript{61} Evidence of Thomas Johnson, 10 June 1908, Royal Commission for Improvement, p.4.
\textsuperscript{62} \textit{Ibid}, p. 6.
PLAN No. 14.

ROYAL COMMISSION ON SYDNEY IMPROVEMENT

THE CHIEF COMMISSIONER'S CITY RAILWAY SCHEME

REFERENCE

Proposed Route
Alternative
Existing Tramways
Reserves

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city railways drawn up by his own department that could be connected to the North Shore by either bridge or subway, as a means of ensuring that a railway connection would be made by one means or the other.

The Railway Commissioner's scheme appears to have been the creation largely of James Fraser, then Engineer-in-Chief for Existing Lines, in consultation with Johnson. However, it drew many of its features from the evidence of other witnesses. Johnson pointed out that Sulman must be credited with the idea of building a station under the existing Central Station. Hutchinson, in the scheme recommended by the Communication Commission, had placed his station overground on the eastern side of Central Station. Johnson accepted Selfe's scheme for a station at Circular Quay although he personally preferred an underground station at this point. Other stations on route included Hyde Park and Wynyard Square, and it was envisaged that all the stations would be connected by three lines of railway.

A significant feature of the scheme was that not only was it intended to suit either a bridge or a tunnel, it was also intended to run out to both the Western and the Eastern Suburbs. The western line was to leave Miller's Point via tunnel to Balmain, and on to Leichhardt, Annandale, and the existing line at Stanmore Station to form a complete loop. The eastern line ran under Government House to Sir John Young's Crescent, to Darlinghurst, Woolloomooloo, and stations at the top of William Street, at Paddington, Woollahra, Edgecliffe, and Waverley, just beyond Bondi Junction. A feature of the scheme was that it was complemented by the existing tramways:

These stations have been arranged so that they come fairly near to the existing tram-lines. The tram-lines would act as feeders and from the stations there would always be a tram service to the points which have to be reached.63

Johnson also proposed building a railway line from Homebush Bay to Darling Harbour for goods traffic only. This way all goods traffic would be diverted from Central Station, leaving it free to cater for passenger traffic. Johnson repeated his view of the superiority of railways over trams. A light electric railway could move people in volumes of six to eight hundred, in contrast to trams which moved sixty to eighty at a

maximum. Furthermore, the difficulty of connecting the tramway systems of the north with the south would be immense:

I cannot express myself too strongly upon the undesirability of carrying the trams from the south to the north shore, because I shall immediately be met with the request to take people from Leichhardt to the Military-road [Mosman], and Leichhardt to Chatswood and St Leonards, and it will mean a very expensive working in connection with the through routes for trams, whereas if you make them the feeders of the railway system the people get in at a station and go where they like...64

Johnson further testified that he would not allow the trams to be taken over the harbour. He told the Improvement Commission that 'the trams on the south side will never be connected with the trams on the north side with my consent. That means of communication should be by light railway'.65

The decision of the Improvement Commission to adopt the Railway Commissioners' scheme was therefore to check the growth of the tramways, and to ensure the eventual construction of the city and suburban railway. The Royal Commission reported strongly in favour of a city railway to relieve the trams, whose service 'has clearly outgrown itself'. It suggested that in future trams should serve only as feeders to railways, with the exception of the North Shore trams which could be brought into the city. The Improvement Commission had thus forwarded its own city and suburban railway scheme in response to the perceived need for improvement of the transit facilities of the metropolis.

The legacy of the Improvement Commission.

It is difficult to be conclusive about the actual impact of the Improvement Commission. Some critics argued that its effect was extremely limited. By 1914, Sulman observed that:

The most important result has been the widening of Oxford Street, the formation of Wentworth Avenue, and a new road from Woolloomooloo to Park Street. The insanitary area of Athlone Place has been remodelled and further work is in progress at Chippendale and elsewhere. The absorption of Camperdown and the widening of the roads has been a step in the right direction.66

64 Ibid, p. 244.
Sulman may have been disappointed by the lack of progress in the 'improvement' of the city, but Charles Reade, on the other hand was relieved to see that nothing much came of the Improvement Commission. His reasons for the relative lack of success of the commission are revealing:

Australia was a democracy, and the efforts in Sydney coming nearly half a century later failed to materialise where in Paris under the autocratic domination of Napoleon III, it resulted in the creation of many wide and noble thoroughfares, but followed also by enormously heavy housing burdens upon the community.67

Among the democratic bulwarks against autocracy was undoubtedly the municipal system. By 1909, there were at least 50 autonomous municipalities in Sydney, and permission had to be sought from them for any improvements that had been recommended which infringed upon their respective jurisdictions. When Wade announced the Royal Commission in February 1908 he expected it to deal 'not only with the city, but also with adjoining suburbs'.68 The City Council, however, were to the forefront of the campaign of improvement, and there was as yet little evidence to suggest that the suburban municipalities were about to begin a campaign of their own. A number of the advocates of improvements favoured a 'Greater Sydney' whereby the municipalities would be amalgamated to form a single large authority. In this way, it would be possible to carry out some of the recommendations, particularly those concerning the main roads, in the suburbs.

The prospects of Greater Sydney were not however, all that promising. Sulman doubted if the populace would be ready for such a 'drastic change'. He believed, nonetheless, that a limited campaign of improvements might eventually lead to a Greater Sydney, and this in turn would pave the way for a proper scheme of urban developments and improvements. Thus, 'for the time being', Sulman suggested, 'the City will have to take the lead, and then either absorb the closely adjoining areas or federate with them for improvement purposes.'69 Allen Taylor expressed a similar point of view when he suggested that

67 Ibid.
68 DT, 28 Feb 1908, p. 7.
the widening of Oxford Street would be a strong inducement to the Government to establish a Greater Sydney:

This scheme will have the effect of carrying our principal thoroughfares through the lesser municipalities, and it will be patent to everybody that as long as we have divided control it will be a matter of impossibility to progress, and develop on the lines we are anxious to do.70

The presence of the multiple system of local governments therefore made very difficult the imposition of the recommended improvements over the whole metropolitan area of Sydney. To overcome the difficulty, the Royal Commission recommended the formation of English style 'town planning' legislation of the type recently introduced by John Burns in the British House of Commons. The impetus behind the recommendation was undoubtedly the evidence of John D. Fitzgerald, a personal friend of John Burns. The Town Planning Bill in Britain legislated for a town plan to be drawn up by each local authority, subject to the amendment, under established criteria, of the Local Government Board. Each 'town plan' would deal with the general physical structure of each local area, including streets, buildings and services. The Improvement Commission went further and suggested that any such bill in New South Wales should also deal with subdivisions, allotments, and the layout of suburbs.71 The implementation of the recommendations had to await the formation of a body similar to the British Local Government Board, which occurred in 1916, when Fitzgerald was appointed to head the new Local Government Ministry.

The Height of Buildings Act 1912.

The Royal Commission also recommended the adoption of a Building Act for the regulation and control of building in the city. It was intended that the Act would safeguard safety standards, as well as the general appearance of buildings. A bill for this purpose had been drafted by the City Council, the Institute of Architects and the Master Builders Association in 1907 and presented to Parliament.72 The Act did not make much progress in Parliament but the Improvement Commission was keen

70 DT, 19 Feb 1909, Sydney City Council Newscuttings.
71 Royal Commission for Improvement, p. lvii.
72 Art and Architecture, vol 4, May-June 1907, p. 85
to see it implemented. It favoured the imposition of a limit on the height of buildings that could be erected in the city, and it sought to establish some form of guidelines on the regulation of the skyline of buildings:

Nothing detracts so much from the appearance of a street as too great a disparity in the heights of adjacent buildings. In the opinion of your Commissioners, a comprehensive Building Act is an immediate necessity. Such a measure should aim at securing unity of purpose and harmony of design in our architecture.73

The process of building up in the city continued, and culminated in the erection of a building 180 feet high, known as the Culwulla Chambers in 1912. Vernon noticed that although the design and facades of the building were of able construction, the building was incongruous in a skyline made of churches and fine public buildings:

When seen as a whole from Hyde Park, where the city skyline can be best judged, and where the building takes its place amongst the towers and spires of a large city, the flanking walls and water tank towers carried out in inferior brickwork, taken in conjunction with the narrowed architectural treatment of the street frontages the building is simply hideous and disastrous in the beauty of the city.74

A strong public reaction to the appearance of the Culwulla Chambers, as well as the fears of a fire hazard, forced the Government to introduce the Height of Buildings Act in 1912. Although concrete and electricity were relatively safe, many remained unconvinced by the safety of the new buildings, and consequently, the Act limited the height of buildings to 150 feet. The Government were assured by the New South Wales Fire Brigades Board that buildings over the height of 150 feet 'passed the line of safety'. In fact, it was not possible to gain a sufficient force of water to tackle fires on buildings over the height of just 100 feet. A building 150 feet high was only safe if water tanks were installed on top of them, and if other fire precautions were adhered to in each floor. The decision to permit the extra 50 feet was something of a concession to the powerful upward thrust of much of the property development in the city. Indeed planning permission for buildings over 100 feet had to be sought not from the Sydney Corporation, but from the Government, which was at the time more uneasy with the high buildings than the City

73 Royal Commission on Sydney, 1909, op. cit, p. Liii.
74 Water Vernon, Salon, vol. 1., No. 4, Jan-Feb, 1913, p.204
Fathers.75 A Building Act dealing with other aspects of construction was not passed, however, by Parliament. The *Height of Buildings Act* was therefore a limited act as it could not influence the appearance or composition of a building, only its height. Suggestions were made to establish boards to attempt to regulate building heights, to each other, and to the adjacent roads, in the manner of the *Heights of Buildings Commission* established in New York in 1913, but these were generally opposed by the City Council. It believed that there were enough authorities operating in the city without another statutory body being formed.76 In the absence of any authority to deal with either the height or the appearance of any building, the City Surveyor was compelled to make suggestions at least from time to time to improve appearances.

The historical value of the Improvement Commission is best seen as an initial response to the impact of steel, electricity, and re-inforced concrete upon the physical structure of the city. The new technology was introduced by the Government, the City Council, and commercial concerns. Although the *Height of Buildings Act* was an attempt to slow down the pace of the physical change of the city, the Government was aware that many other cities around the world had height restrictions. Indeed W.A. Holman, who became Premier in June 1913, claimed that the only city in the world where the rise of buildings was allowed to go unchecked was New York.77 Generally, the enthusiasm of the State, the City, and the citizens, especially the large property holders in introducing the technology was intoxicating. The city was about to be graced with an electric railway, one of the most impressive bridges in the world, and electric trams already ran out to all portions of the metropolis.

The Improvement Commission is best seen as both part of the introduction of these major works, and as a response to the effects of the technology that made them possible. It was an attempt to establish guidelines for the harnessing of the effects of the technology, as well as an attempt to provide a public transport system that best exploited it. Later critics of the Improvement Commission have overlooked its role, and judged it as a haphazard attempt at 'town planning'. Engineers, however, and not architects, politicians and not town planners were the dominant professionals of the day. Historians of the planning movement

75 Frederick Flowers, 5 November 1912, *NSWPD*, vol xlviii, 1912, p. 2643.
76 *PMCCS*, Town Clerk's Report, 1918, pp 97-100.
77 *NSWPD*, vol xlix, 1912, 14 Nov 1912, p.3227.
have removed the Improvement Commission from its historical context, which was a city buffeted by a new technology, the adoption of which was generally thought to be essential in the coming decades.
Chapter 7.

The City and the Suburbs 1900-1918.

Along with the provision of trams and the extension of the railways, the transformation of the physical structure of the city had a dramatic effect upon the residential pattern of Sydney. These developments encouraged people to live in areas at some distance from their workplace. They made available the attractions of fresh air, open spaces, and in the case of the Eastern Suburbs, the beaches, to people who worked in the more congested city, and consequently, the outer suburbs underwent a rapid development in the early part of the century.

The migration to the suburbs resulted in a depletion of the population living in the city, and this in turn, contributed to the transformation of the city from a residential to a commercial area. The activities of the City Council, the Railway Commissioners, the DPW and the Harbour Trust were carried out in a city that was in many respects making way for them. While the work of the statutory boards certainly contributed to a general rise in land values in the city, such work would not have been possible, or perhaps necessary without the general desire for suburbanisation.

The deference shown to suburbanisation was in itself a significant feature of the improvements of the City Council and the resumption and demolition of slum areas was made possible by it. It believed that if most people were content to live in the suburbs, then why not everybody? Only such an attitude appears to excuse the enthusiasm with which the City Council carried out the improvements which resulted in the demolition of so many houses in the city. It was estimated that the City Council had demolished nearly a thousand dwellings resulting in the displacement of 5,760 persons by 1912, and virtually no houses were built in the city to provide for them. By 1919 the total number of people displaced by the demolitions was estimated to be 9,000.

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Overcrowding and the Improvement of Sydney. 1905-1912.

The energy with which the Sydney Corporation carried out the policy of 'improvement', allied to a general increase in the demand for houses after 1905, eventually led to a severe shortage of housing in the metropolis as a whole. This compelled the state government to look more seriously at its obligations towards the housing of its citizens and a flurry of parliamentary activity ensued. A Housing Board was established in 1911 to provide rented accommodation for those who were in need of it. Robert F. Irvine, a professor of Economics at Sydney University was appointed in 1912 by the NSW Legislative Assembly to inquire into the question of working class housing in Europe and America. The Sydney Corporation were empowered in 1912 to build 'workmen's dwellings' within the city for those who were displaced by the improvement schemes. A general increase in rents as a result of the shortage of places led to the formation of a select committee in September 1912 to inquire into 'the enormous increase in house rents'.

Underlying these developments is a recovery from the economic depression of the 1890's, and the emergence of an economic boom from 1905-6 based on the increased production of gold and metals and upon wheat exports from the colony. Commonwealth tariff protection in 1907 led to a rapid increase in manufacturing industries and employment. The building industry expanded and certain trades received large wage increases in the 1905-12 period, by as much as 30% in the case of bricklayers and carpenters. Increased immigration, marriage rates and population through natural causes combined to raise the demand for houses. The number of immigrants to NSW from overseas rose from a little over 4000 in 1908 to nearly 14,000 in 1909, and by 1911 the numbers entering the state reached 27,116. The increase in marriage

3 Robert F. Irvine, op cit.
4 Sydney Corporation(Dwelling Houses) Act, (2 Geo. v no.8,1912)
5 Report from the select committee on increase in house rents, NSWLA, vol 3, 1912.
7 Report of select committee on increase in house rents, ibid, 1912, p.69.
8 The picture is complicated by the net loss to NSW in immigration to other states of 1463 persons in 1911. However immigration from overseas almost certainly contributed to the increase of the population of Sydney during the
rates, from 7.63 per 1000 persons in 1907, to 11.3 per 1000 in 1912, also added to the pressure for housing. In addition the population of NSW expanded through natural increase. The population of NSW increased by 62,000 and by 80,000 in 1911 and 1912 respectively. These were record increases in the history of the state. The population of the Sydney metropolis rose from 482,000 in 1901 to 620,000 in 1911, with a corresponding increase in density per acre from 5.06 to 6.51 over the same period.

The rapid increase in immigration was preceded by a boom in housebuilding, particularly in the suburbs. Areas of the metropolis that experienced the heaviest influx of new inhabitants included North Sydney, Marrickville, Ashfield, Canterbury, Drummoyne, Leichhardt, Mosman, Petersham, Randwick, Rockdale, Waverley and Willoughby. The suburban growth in the early part of the century was therefore spread over all parts of Sydney, West, North, East and South. The population of the city, nonetheless, declined overall. Although the city took in Camperdown in 1908, which had a population of 8000, the population of the city, including Camperdown, stayed at 112,000 in 1901 and 1911. Overall, therefore, the city's population, excluding Camperdown, declined by as much as 8,000 over the first decade of the century.

The Government had encouraged the process of suburbanisation. A significant step in this direction was the legislation passed in 1908 to change the base for setting the rates from the Annual Rental Value to Land Value. An immediate consequence was that many large landholders close to Sydney saw their rate bills increase by as much as 500%. The temptation to subdivide and sell off large plots of land was too much for many land holders, and the great exodus to the suburbs was even further enhanced. The huge sales of the period, including the 123 acres sold at Bellevue Hill, and the 273 acres sold at Waterloo in 1911 by the auctioneers Raine and Horne, were undoubtedly influenced by the shift in rating systems, and this change is a measure of the determination of the Government to provide land for housing. The campaign of 'improvement' is therefore best understood when put into the context of period and interstate migration is offset by the rural-city movement. Report of the Immigration and Tourist Bureau (Jan 1911-30 June 1912), p.6.

9 New South Wales Statistical Register for 1912, Government of New South Wales, Sydney, 1914, p.78.
10 Ibid, p.10.
DENSITY OF POPULATION
SYDNEY METROPOLITAN AREA
1920

POPULATION PER ACRE FOR
SHIRES AND MUNICIPALITIES
SHOWN THUS: SYDNEY

Spearritt, Sydney Since the Twenties, p.28.

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the availability of houses in the suburbs, and the determination of the
Government to provide land for housing.

While relatively high wages enabled many to migrate to the newly
opened suburbs, there were many others who could not afford to move
out from the city. R.D. Meagher also made the point that living in the
suburbs was simply inconvenient for many people:

It is all very well to say "Go out into the suburbs"; but men working in
Darling Harbour must be near their work They cannot get the fresh air of
the suburbs. A working-man, who has been carrying heavy sacks of grain
all day, does not look forward with any pleasure to rushing to an
overcrowded tram, and standing on the footboard while he is conveyed out
into the fresh air of the suburbs, especially as he has still further in front of
him the prospect of rising at 4.30 or 5.45 on a winter's morning, dressing
by candlelight, and taking his chance of getting a footing on an
overcrowded tram in order to get to his work.12

Families caught in this trap often moved to the next available house in
the street nearest to them. Consequently the congestion increased in
many areas of the city and inner suburbs including Redfern, Surry Hills,
and Darlinghurst. The density of persons per square acre rose in
Paddington, increasing from 54.5 to 58 from 1901 to 1911, while the
population of Redfern and Darlington stayed level over the same period.

By 1912 the housing 'problem' was generally identified therefore as a
problem of overcrowding in certain areas. Although Irvine reported that
the 'slum' districts in Sydney were nowhere near as overcrowded as
some of the areas in the cities of the 'Old World', he warned that:

...many smaller areas in Redfern, Surry Hills, Woolloomooloo etc, are greatly
over housed. One block in Redfern, comprising three-quarters of an acre,
has 37 houses- an average of nearly 50 per acre. In these places the
housing conditions are as bad as they can be. But for our good climate there
would be little to choose between life under these conditions and life in the
worst existing slums of London.13

R.D. Meagher, who represented Chippendale, one of the most congested
areas, in the Legislative Assembly, railed that:

It is no overblown phantasy of the newspaper man in my constituency that
there is a woman and her daughter living in a big machine case. The Board
of Health inspectors have taken a tolerant view of the present situation,

12 NSWPD, vol xlv, 1912, p.3976
13 R. F. Irvine, op cit, p.16.
and in some parts there are four or five people living in a room 8 feet by 8 feet.\textsuperscript{14}

It is an irony that the problem of overcrowding which the Government were now forced to address was in many respects due to the activities of statutory authorities, including the City Council and the Harbour Trust, which resumed and demolished properties in the areas under their control. Their activities were encouraged by the widely held view that the demolitions were both necessary and in keeping with advanced thinking. According to the \textit{Sydney Morning Herald} it was 'a not unusual paradox in social betterment' that the improvement of the city 'tends to aggravate the evil it is designed to remedy'\textsuperscript{15} Although the editors of the newspaper advocated legislation to enable Sydney Corporation to rehouse many of the displaced tenants, it insisted in calling the improvement works a 'forward movement'.\textsuperscript{16} In the Legislative Assembly, Arthur Griffith, the Minister for Public Works, in his introduction of the \textit{Sydney Corporation (Dwelling Houses) Act}, admitted that it was the 'progressive policy' of the Sydney Corporation that resulted in the dispossession of many people of their homes.\textsuperscript{17}

It is significant to note that the policy of widespread condemnation and demolition of houses in the city also took place in Melbourne during this period. This practice increased considerably in 1912 and peaked in 1916 when over 1000 houses in Melbourne were condemned.\textsuperscript{18} In an analysis of the phenomenon, Paul Hicks suggested that the political tension between the city and state, or more specifically the City Council and the State government provides the explanation for the activity of the city authorities. The condemnations were the result of the efforts of the City Council to impress the Royal Commission on housing which sat from

\begin{footnotes}
\item[16] \textit{SMH}, 31 July 1913, City Council Library Newscuttings. 'Ever since Sir Allen Taylor's forward movement in regard to the improvement of the city of Sydney was initiated it has been repeatedly pointed out in these columns that unless a parallel scheme of a constructive nature were also put into active operation the inevitable result of cleaning up one area would be the beginning of another'.
\item[17] \textit{NSWPD}, vol 45, 18 Mar 1912, p.2971. 'We all know that the City Council, in its progressive policy, is pulling down slums and dispossessing a number of persons of their homes'.
\item[18] Paul Hicks, 'Most humble houses'. Some notes on the housing investigations in Melbourne, 1913-17, \textit{JLSH}, May 1987, Vol 52, p.47.
\end{footnotes}
1913-17, an enquiry which he describes as 'part of a continuing conflict between local administration and government intervention'.

At no stage did the City Council in Melbourne carry out anything like the number of evictions and demolitions carried out in Sydney. Although the Melbourne City Council issued 1633 condemnations between 1905 and 1911, only 66 houses were demolished. During the peak period of condemnations, from 1912 to 1918, a total of 335 houses were demolished out of a total of 4901 condemnations. In Melbourne, however, the condemnation of a building often resulted in substantial repairs being carried out along the lines suggested by the Health Committee. Of the 6,534 houses that were condemned from 1912 to 1918, fully 3,550 were repaired this way. This had the result of increasing the value of the property, and thereby the rental. The combination of condemnation and repairs therefore forced the poorer tenants to leave many parts of the city in just the same way as the demolitions in Sydney a few years earlier. Factories and light industries moved into the newly repaired buildings that had once been occupied by working class families. The city was 'improved', its physical structure was refurbished, and its rateable value increased.

The phenomenon shared by Sydney and Melbourne whereby residential areas of the city came under increasing pressure from commercial activities was highlighted in the remodelling of the slum area of Sydney known as Chippendale. The area lay between George-Street West, Regent Street, Cleveland Street and Pine Street. The Improvement Commission suggested that the area could be remodelled, after its conglomeration of narrow streets and overcrowded houses had been pointed out by a number of witnesses, especially Canon F. B. Boyce. After the Royal Commission, Boyce led a deputation of the Church of England Social Reform Association of Sydney in July 1910 to the Lord Mayor, Allen Taylor, when he called for the clearance of some of the worst congested areas of the city, such as Surry Hills and Chippendale.

In reply, Taylor reviewed the work of the City Council in dealing with overcrowded areas in recent years:

19 Hicks, *ibid*, pp.49-50.
20 Hicks, *ibid*, p.52.
21 Hicks, *ibid*, p.55.
At Little Devonshire Street, also Hickson Street, the Council had wiped out a deplorable state of affairs, while a desirable improvement could be effected at Balfour Street. The Engine Street Markets had also been erected on a spot which a few years ago was not fit for people to live upon. It was very necessary in dealing with the various remodelling schemes, to make provision for the growing City Traffic. The widening of Elizabeth Street to Randle Street would be a very desirable step in that direction, while it would be admitted by all that the widening of Oxford Street was being carried out in the best interests of the community. 23

Taylor favoured sweeping away Chippendale, but only if it did not land the citizens 'in heavy expenditure'. Re-housing was a poor afterthought in Taylor's scheme of things. He did not think the Council were empowered to build workmens' dwellings 'but if necessary this power should not be difficult to obtain'. Why, if it was not difficult to obtain the power, did the council not build houses earlier? In truth, the functions of the council were commercial and physical, not social. The provision of arteries for the growing traffic of the city and the widening of important streets were the responsibilities of the council, not the housing of the poorest inhabitants of the city. Considerations of property and the value of property preoccupied the attention of the City Fathers.

The City Council eventually decided to clear Chippendale and in 1911 it began to dispossess tenants and demolish much of the houses. A total of 1800 persons were affected. On this occasion, however, the council felt compelled to consider the question of re-housing more seriously than it had done in the past. Public representatives called upon the Lord Mayor to provide housing for the dispossessed tenants, a petition was signed by the tenantry, and local aldermen lobbied for a housing project. After a review of the presentations, however, the Lord Mayor reached the conclusion that the land was 'far too valuable' for housing, and furthermore the 'area was particularly adaptable for commercial purposes'. 24 Commercial interests had already begun to buy up property close by, and it was only a matter of time before commercial enterprise would appear in the Chippendale area itself, pushing up the value of property to a level when it would have been impossible for most of the tenants to pay the increased rent. Consequently, there was no commercial logic to the maintenance of Chippendale as a residential area, and the City

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24 Town Clerk's Report, *PMCCS*, 1908, p.96
Council could not stand in the way of market forces. The City Council, however, decided to press ahead with the resumption in order to widen the streets. The streets and lanes were narrow and the ever-present threat of the plague, allied to the opportunity to increase land values, was sufficient reason to warrant it. The three large blocks that had already been purchased for adaption for commercial sites ran along the lines of the old narrow streets, and the Lord Mayor had 'no doubt that other commercial premises would have been erected with the existing narrow approaches'.\(^{25}\) Taylor hoped that the resumption would lead to wider streets.

The lack of support for working class housing in the city may also have been closely associated with the general abhorrence of flats or tenements. It seemed to be an orthodoxy that flats were undesirable. The lesson learnt by Robert Hickson in the 'Rocks' was that flats were were unseemly. He asked Boyce during the Improvement Commission:

\begin{quote}
Do you think our climate is suitable for flats,- there is a very strong feeling in all the areas under the control of the Harbour Trust against flats;- I do not think our climate is suitable for housing people so close together, and I do not think it tends towards morality to have a common staircase for a number of families?\(^{26}\)
\end{quote}

Boyce agreed with Hickson that the hot climate and close living quarters tended to encourage low morality, and he added that flats 'do not tend to assist family life'. Notwithstanding his reservations about flats, Boyce believed that in some instances flats ought to be built in the city, in particular for couples with no or few children. In this matter he received support from George Campbell, the President of the Sydney City Mission, who stated that 'there is a very decided demand on the part of the better class of people in Sydney for flat accommodation'.\(^{27}\) Campbell suggested the building of tenement blocks similar to those erected in Glasgow. He was one of few, however, and the general disapproval of flats led to the inevitable conclusion of the Royal Commission that although some areas could be 'remodelled' in exceptional cases:

\begin{quote}
We do not think that the tenement or flat system of housing would meet the requirements of Australian workmen and we recommend that, on social
\end{quote}

\(^{25}\) PMCCS, 1910, p.135.

\(^{26}\) Royal Commission for Improvement of Sydney,, p.111.

\(^{27}\) Ibid, p.148.
and hygienic grounds, workmen should be employed to live in the suburbs.28

The social and hygienic grounds mentioned by the commissioners had a particularly powerful effect on public opinion. The association between the plague and the overcrowded areas of the city are obvious, but less obvious is the disdain held not merely for the slums, but for the slum dwellers themselves. The environmental determinism of the period was not always an optimistic appraisal of human potentiality in desirable conditions. Sometimes the causal relationship operated the other way around and in the minds of many slum dwellers were guilty by association. A Professor Henry Jones of Glasgow University pointed out in a lecture in Sydney University in 1908:

It is true that if you put a beast into a palace he will remain beastly, and he will defile the palace. For that reason some people do not believe that the slum areas can be reformed from without. The only way to reform is from within- to reform the people's characters. That is true enough, but it is no reason for letting things be.29

John Garlick, the secretary of the Improvement Commission, argued before the Institute of Architects:

Slums were created by the people that lived in the dwellings more than by the people who built them. You might have places that would be slums with a certain class of people living in them, that with another class of residents would be respectable and healthy homes. The prevention of slums depended more on the creation of a new trend of thought among the people than on the creation of a new ideal of architecture.30

The image of slum society was further tarnished by the presence of the Chinese in some of the most overcrowded areas. Among the most vocal critics of the Chinese in Sydney was John D. Fitzgerald:

Certain alien races in our midst, too, create slums by their own habits, as coral insects build continents and spiders spin webs. They can never be taught to realise our standards of civilised life; and thus we hear of the

29 SMH, 8 July 1908, p.9.
30 Building, 11 Oct 1913, p.58, in reply to address of Walter Burley Griffin to Institute of Architects of New South Wales.
Chinese slum-dwellers boarding up their windows to shut out light and air, and herding in droves in one room.31

Part of the problem of the Chinese in the city was the tendency of the Chinese to add on rooms and passages to their houses, thus adding to the congestion.32 Cooking smells may also have alienated the Chinese from the Australian community. Over a hundred houses of the notoriously overcrowded area of Wexford Street were occupied by the Chinese, and other Chinese ghettos existed in Waterloo and Redfern. So unpopular were the Chinese that slum reform was often the expedient for scattering them. Such an attitude was condemned by Fitzgerald who pointed out that a likely result of slum clearance would be the migration of the Chinese to other ghettos just outside the city:

...it will be merely transferring, if not intensifying, the evils of overcrowding, and it would be a narrow minded view that would rejoice at the inner city clearing itself of undesirable aliens at the expense of its neighbours.

Fitzgerald's opposition to the clearance of the Chinese ghettos was also rooted in his long-standing opposition to much of the clearance taking place in the city. Fitzgerald was perhaps the sole prominent and consistent critic of city improvement without a policy of rehousing. In 1901 he led a meeting of residents affected by the construction of the Central Railway station because the residents feared that the resumptions carried out by the DPW would force them to 'be driven to more distant localities'. They asked E.W. O'Sullivan to erect 'model dwellings' so that they could be near their work place. The residents argued that they wished to live in the city so that 'they would then also have all the convenience that residence in the city could give'.33 Waterside workers, in particular, had little to gain from a move to the suburbs, and there were many others who probably disliked the idea of leaving the established communities of the city.

31 John D. Fitzgerald, Greater Sydney and Greater Newcastle, Sydney 1906, p.115.
32 Report of the Royal Commission on alleged Chinese Gambling and Immorality and Charges of Bribery against members of the police force, NSW, Cmd papers, 1891-92.
33 SMH, 2 Nov 1901, Sydney City Council Newscuttings.

Whatever the reasons, the working class moved from the city and inner suburbs in enormous numbers, heading in particular for the south-west area of the metropolis. The development of the area followed the opening of a new railway line, firstly to Sydenham, near Marrickville, and then to the outer suburbs of Bankstown in 1909. By 1912 the flow of the population there had become an avalanche. The demand for places in Marrickville was described by Albert McCoy, a property agent operating in the area as 'phenomenal'.\textsuperscript{34} Many of the houses in Marrickville were bought by working class families who had benefited from the recent increases in wages, and they were not bound for those on very low incomes. Marrickville Council imposed strict regulations regarding the size and construction of houses in the area, including the condition that all houses had to have a side entrance. While this rid the area of the terraced house, it also pushed up the price of houses. Consequently, houses in Marrickville were limited to the relatively affluent, who were often able to procure the houses outright. This left few houses available for rent, and what houses were available were expensive. None could be rented for less than 15-16/- a week.\textsuperscript{35} These rents were prohibitive to labourers, who generally earned less than 9/- a day. The settlement of Marrickville in the first decade of the century, with the third highest number of occupied dwellings of any municipality in Sydney,\textsuperscript{36} therefore, provided little or no accommodation to those on low incomes in the overcrowded areas of the city.

A similar situation existed in Canterbury, south-west of Marrickville, and along the Bankstown line, which had its huge area of 8,384 acres subdivided and filled in particularly between 1910 and 1920. Most of the new houses also appeared to be bound for owner occupiers rather than tenants. Building regulations, however, seemed to be less stringent than those in Marrickville and houses were often very cheap, small and of poor quality. In 1910 some houses sold for as little as £140 and one

\textsuperscript{34} Albert McCoy, \textit{Select committee on increase in house rents}, 1912, p.19.
\textsuperscript{35} Alderman William Robinson, \textit{Select Committee on Increase in House Rents}, 1912, p.28.
\textsuperscript{36} Balmain contained 6,464; North Sydney, 7,200; and Marrickville, 6,514. Ed Jill Roe, \textit{Twentieth Century Sydney: Studies in urban and social history}, Sydney, 1979, p.268.
house was known to have been sold for the princely sum of £36.37. Tradesmen, clerks, and foremen now had the opportunity to own their own home. In 1914 810 houses were erected in Canterbury, representing 8% of all houses built in the metropolis in that year. It continued to grow during the war years and by 1921 it contained the largest number of occupied dwellings with the exception of North Sydney, Randwick, Marrickville and the city itself. Its population reached 37,000 in 1921 compared to less than 2,500 in 1901.

The combination of rising wages and high demand for accommodation provided an ideal opportunity for landlords to capitalise on their property. Rents increased all over Sydney from 1910 onwards, often by as much as 50%. These increases were particularly noticeable in the smaller houses, hitting those on low incomes the hardest. The increases were attributed by McCoy to:

- the increased price of land,
- the increase in the payment to the labourers,
- and the abnormal demand for places. The landlords have taken advantage of the situation, and have increased the rents, and, in some cases, have advanced them excessively.

By 1911 the Government realised the severity of the rents crisis and in October 1911 it appointed a select committee to 'inquire into and report upon the enormous increase in house rents'. The result was a prolonged inquiry into house rents over many parts of Sydney which eventually issued a final report in November 1912. The conclusion reached by the select committee was as expected, that the rise in rents was largely the result of a failure to supply a sufficient number of houses to cope for the demand. It also pointed out that higher wages affected the building industry. Along with the increased costs of materials, higher wages were responsible for the high prices of new houses, which in turn led to an increase in rents. The committee then suggested that the Government itself should adopt a policy of public housing to help reduce the overcrowding:

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38 Auckland Vaughan, an estate agent, estimated that the average rental for house with four rooms and a kitchen had increased from 11/12 in 1909 to 14-15/- in 1912, *Select committee on increase in house rents*, p.17.
39 McCoy, ibid, p.19.
40 *Report from select committee on increase in house rents*, ibid, p.3.
We suggest that the Government should carry out a vigorous policy of constructing dwelling houses that allowing for a reasonable interest on outlay, will let at a rental within the reach of wage-earners, and that power be given to Shires and Municipalities to do likewise.\textsuperscript{41}

The Government, the 'Rocks', and Daceyville 1911-12.

The Government had already drawn a similar conclusion. After the visit of McGowen to the 'Rocks' in connection with the work of the Sydney Harbour Trust, \textsuperscript{[see chapter 4]} the Government established a Housing Board to take over control of the area from the Trust in May 1911. The visit by McGowen to the 'Rocks' had highlighted the deficiencies of its administration in the area and McGowen contemplated handing over the area to the City Council.\textsuperscript{42} Such a transfer had been the subject of negotiations between the City Council and Joseph Carruthers when he was Premier 1904-07, but the deal fell through when Carruthers refused to sell the area to the council in sections. Instead he insisted that the 'Rocks' be sold to them as a whole. The City Council were not willing to purchase the area on this basis, feeling that it would probably end up by buying it at an inflated price. If the 'Rocks' was sold in sections, the City Council could at least negotiate prices for each section.\textsuperscript{43}

The McGowen government may well have regretted that the earlier discussions did not lead to the City Council taking over the area. It had found itself in charge of an area that was very difficult to manage. The transfer of control of the area did not bring an end of its difficulties. The previous manager of the area, F.F. Hall, was retained by the Housing Board and his presence was the focus of a campaign against the administration by Peter Cochran, M.L.A. for Darling Harbour. Cochran repeatedly raised the corruption of the administration of the 'Rocks' in the Legislative Assembly, citing Hall on most occasions. In October 1911, Cochran pressed for a Select Committee to inquire into his managership:

\textit{If one moiety of the complaints received by me have any foundation, a committee of inquiry will do an immense amount of good in being able to point out that up to the present time the area has been maladministered. It has been said that that the manager in charge of the area has shown}

\textsuperscript{41} Ibid, p.4, \\
\textsuperscript{42} SMH, 16 Mar 1911. \\
\textsuperscript{43} SMH, 16 Mar 1911.
unjustifiable favouritism...the gentleman in charge of the area is absolutely unfit to control such a large number of Government tenancies.\textsuperscript{44}

Although McGowen rejected the allegations, Cochran succeeded in having a select committee appointed, and indeed, in having it reappointed in August 1912.

The City Council also faced the problem of a rebellious tenantry in Chippendale. A popular agitation was worked up to force the City Council to re-house at least some of the tenants affected by the demolitions. The tenants were supported by R.D. Meagher, who had moved in the City Council in April 1911 that structurally sound buildings should not be demolished 'in view of the demand for houses'.\textsuperscript{45} Meagher managed to persuade the City Council to adopt a housing scheme for the area and the City Council approved the erection of block dwellings for 300 families on a portion of Chippendale. Each flat was to have four rooms, plus a kitchen and a bathroom for a rent of 8s 6d a week. It was estimated that the block would cost £30,000 to build after paying £28,000 for the site. Once drawn up the plan was presented to the Government. Arthur Griffith, the Minister for Public Works, sponsored the scheme and in 1912, the \textit{Sydney Corporation(Dwelling Houses) Act} was passed to allow the City Council to resume land and to build residential property upon it.

Partly as a response to the housing shortage, but also to offset some of the chaos in the 'Rocks', the Government reacted favourably to a scheme for a garden city drawn up by John D. Fitzgerald, the first chairman of the Housing Board. Fitzgerald had always been attracted to town planning and he suggested the establishment of a suburb along modern garden city lines. Fitzgerald approached John Sulman, one of the most noted advocates of town planning in Australia to design a scheme for a suburb to the south of Kensington and to the east of Botany swamps.\textsuperscript{46} This arrangement was agreed to by Campbell Carmichael, the Colonial Treasurer, who then moved a housing bill to ratify the scheme in early 1912. John Dacey later took over the reins as Colonial Treasurer in November 1911, and it was he who succeeded in having the necessary legislation put in place.

\textsuperscript{44} P. Cochran(Darling Harbour), 24 Oct 1911, \textit{NSWPD}, vol 43, 1911-12, p.1346.
\textsuperscript{45} \textit{PMCCS}, 1912, p.276.
\textsuperscript{46} \textit{Salon}, vol 2, No. 1., Aug 1913, p.22.
Dacey Garden Suburb

Design

Shewing Proposed Subdivision of Crown Lands West of and adjoining Bunnerong Road and South of Gardener's Road

Parish of Botany—County of Cumberland
Once Daceyville, as the project became known, was under construction, the Government used the estate to divert attention from the resumptions taking place in the 'Rocks'. Although McGowen had promised to remodel and rehouse the area, he was apparently persuaded some time later that such a programme should not be undertaken. The Colonial Treasurer from May 1912, John Henry Cann, refused to sanction such remodelling, supposedly on the grounds that 'the land was too valuable for workmen's dwellings'. Cann, however, was sensitive to the claims that the activity of the Government in the 'Rocks' was making people homeless. He insisted that this was not true, certainly not since he took office:

The Premier, when he occupied the position I now hold, issued a general order which has been a source of considerable trouble. That order was to the effect that no people were to be removed from any house until another place was provided for them. I understand that since that order was issued, no evictions have taken place, and no one has been asked to leave unless there was another and suitable place to offer him.

This was not good enough for John D. Fitzgerald, who emerged as a particularly trenchant critic of the Government's policy in the 'Rocks' after he left the Housing Board in April 1912. He claimed that as it was, 'no person present was safe from eviction for 24 hours'. According to Fitzgerald the Government were leasing out property to private individuals and companies, leaving the tenants vulnerable to eviction. What was more, Daceyville could under no circumstances be described as a relief for many of the tenantry in the area. Rents in Daceyville ranged from 13/6 a week upwards. In a deputation to Cann by Fitzgerald and others, however, it was pointed out to Cann that casual labourers, on the other hand could only afford 8-10/- a week. Cann could only reply that 'the Government has built houses at Daceyville, and they are being occupied'. This was hardly any consolation to those then under threat of

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47 SMH, 4 Oct 1912.
49 SMH, 4 Oct 1912.
50 Parliamentary Standing Committee on Public Works, report, together with minutes of evidence relating to the proposed erection of crown lands at North Stockton, near Newcastle, under the provisions of the housing act 1912, NSWPP, vol 3, 1915-16, p.23.
51 SMH, 27 Feb 1913.
52 Ibid.
eviction in areas under government administration. The activities of the statutory authorities rarely seemed so heartless:

The City Council, the Railway Commissioner, the Government, and the Harbour Board were demolishing houses right and left, and the people were being driven like rats to the suburbs.\(^{53}\)

The problem of overcrowding continued the following year when the Government were forced to follow one of the more unorthodox recommendations of the *Select Committee on the increase in houses rents*. The select committee suggested that overcrowding could be relieved by the erection of canvas tents 'during the summer months in such places as Daceyville or Centennial Park, under proper sanitary conditions and regulations, at a reasonable rent'.\(^{54}\) In late 1914, the Holman Government proposed to erect 500 canvas houses in the vicinity of Daceyville, to be rented out for one shilling a week each. For every four or five dwellings a lavatory would be constructed.\(^{55}\) Fifty of these dwellings were in fact erected. The canvas, however, was replaced by galvanised iron because of the 'grotesque pantomime shown when the residents used lights at night-time'.\(^{56}\) The houses which remained in place for much of the war collectively became known as Canvastown or Stannumville.

Although it failed to live up to its early promise, Daceyville had a somewhat more fortunate outcome than 'Canvastown'. The scheme was supposed to fill in an area of 336 acres with some 1,437 cottages, leaving ample room for open spaces, wide roads, and side-walks.\(^{57}\) By 1924, only some 315 houses had been constructed, in an area about one fourth the size of the original design. Each house was allotted a liberal frontage, ranging from 38 feet to 45 feet, and the houses had an average depth of 133 feet. In keeping with the latest orthodoxy on garden city design, there were no front fences separating the front lawn from the kerb, and only a purely ornamental fence was provided between each house.\(^{58}\) In spite of the high rents, the houses appeared to attract a wide range of

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\(^{54}\) *Select committee on increase in house rents*, p.4.

\(^{55}\) *Worker*, 22 Oct 1914, p.11.


tenants, although tradesmen predominated. After the outbreak of the Great War, returned soldiers and soldiers widows appeared to have been given preference in the allocation of houses.

Any resolve that may have existed among statutory authorities to rehouse the citizens in the city appears to have dissipated by 1914. A.A.Cocks, the Lord Mayor for 1913, while favouring improvements, was strongly opposed to re-housing. He had opposed the Chippendale project in both the City Council and the Legislative Assembly. When he was made Lord Mayor he earmarked over half a million pounds for improvements, none of which was destined for rehousing. He told Canon Boyce that the reconstruction of Chippendale:

was one of the greatest mistakes the council had ever made, for slums were caused as much by the habits of the people, as by the type of building they lived in. The very people who ought to go out into the fresher air of the suburbs were those who could not be prevailed upon to leave the city area in any circumstances.

Later when R.D. Meagher was Lord Mayor, and the City Council embarked upon the widening of William Street, Canon Boyce reminded it that the nearby area of Woolloomooloo was still overcrowded. The City Council ignore his pleas for an improvement of the area, as if it no longer had the will to tackle the problem of overcrowding. Canon Boyce drew his own conclusion:

It has been my experience, as of others interested in questions of social reform, that it is easier to arouse public opinion for the first time to the need for combating an evil, than to fan into flame the ashes of a past enthusiasm.

Deference and Suburbanisation 1905-12.

The City Council had therefore apparently turned its back on the prospect of residence in the city by 1913. The Government, also, once having established Daceyville, did not embark upon any new initiatives

61 NSWPD, 18 Mar 1912, vol xlv, 1911-12, p. 3982.
62 SMH, 15 Nov 1913.
63 F.B. Boyce, Fourscore years and seven, the memoirs of archdeacon Boyce, Angus and Robertson, Sydney, 1934, p.96-7.
in housing during the war and by 1918 it was estimated that there was a shortage of 10,000 houses in the Sydney metropolitan area.\textsuperscript{64} The war postponed any thoughts of a major programme of housing, and the unwillingness of the Government to become a house builder was also encouraged by the report of Robert Irvine who concluded that except in the case of emergency, or for experimentation, 'the State should not...become a house builder'.\textsuperscript{65} He believed that the proper authority to meet housing shortfalls was local government The Government had probably also accepted the view that re-housing in the city was an anachronism, a view that was often expressed in the Legislative Assembly. In the debate on the \textit{Sydney Corporation(Dwelling Houses) Bill} in 1912, one member of Parliament stated:

\begin{quote}
It must be recognised that the city of Sydney is situated on a narrow neck of land, the whole of which will be required in the near future for commercial purposes. Every day that land becomes more valuable, and the result will be that the residential population must seek habitations elsewhere.\textsuperscript{66}
\end{quote}

His opinion was supported by A.A. Cocks who predicted that the improvement of the city, upon which all were agreed, would result in such pressure for space 'that the working people will be bound to go outside the city of Sydney for reasonable existence at a reasonable rate'.\textsuperscript{67} Such predictions were also followed by the assertion that what was likely to happen, should happen, and it was therefore better to smooth the path for the migration to the suburbs:

\begin{quote}
The time will come when the City Of Sydney will be given up wholly to commercial purposes, and the population for residential purposes will be forced into the suburbs, and the sooner that comes about the better it will be for the health of the community.\textsuperscript{68}
\end{quote}

Such deferential attitudes to the notions of advancement, progress and inevitability had therefore succeeded in becoming the prevailing orthodoxy. The great spread of the suburbs, the exodus of the well-to-do from the city to the salubrious residences of the coast or the detached

\textsuperscript{64} Sulman Papers, Mi Mss 4480, Box 7(8).
\textsuperscript{65} Irvine, \textit{op. cit}, p. 254.
\textsuperscript{66} R.A. Price(Gloucester) 18 Mar 1912, \textit{NSWPD,}, vol.45, p.3978.
\textsuperscript{67} A.A. Cocks(St Leonards), 18 Mar 1912, \textit{NSWPD,}, vol 45, p.3982.
\textsuperscript{68} Thrower(Macquarie), 18 Mar 1912, \textit{NSWPD,}, vol 45, p.3979.
cottages of the west, and the rapid commercialisation of every square inch of ground in the city pointed the way for the future. The answer to the problem of overcrowding was quite simple, develop the suburbs:

If we could only make available to the city worker the huge undeveloped areas which surround Sydney, we should hear no more talk of overcrowding and we should should see in the next generation a decided improvement in the physique and morale of our citizens. The solution lies in wider and swifter and cheaper communications, and we venture to believe that these will be the only permanent solution.69

The perception that suburbanisation was necessary, and beneficial, was undoubtedly encouraged by the suburbanisation that had already occurred among the middle class. In the first decade of the century the middle class had migrated in enormous numbers to the coastal areas north and south of the mouth of Sydney Harbour, pushing up the value of the land. This was especially the case along the coast to the south of Sydney Harbour, an area better known as the Eastern Suburbs. Prestige, scenic views and the legalisation of surfbathing in 1906 combined to push up the price of land from Vaucluse to Cronulla. Land values increased by 300 per cent from 1908 to 1913 in Vaucluse, and house prices ranged from £950 in Centennial Park to £5000 at Darling Point (Woollahra). Further south in Cronulla, a hectare of land which fetched £37 in 1903 at a government auction was sold for £3000 ten years later. The area established itself as the most prestigious in the colony and in 1913 it was observed that:

...it has always been in the east that wealth and power have congregated and dictated the future destinies of the young country. Leaders in commercial centres, people high up in the social circle, and men prominent in the political world of New South Wales have at all times congregated in the east.70

North of the harbour the municipalities of Mosman and North Sydney underwent rapid development. The population of North Sydney rose from 22,000 in 1901 to 34,600 in 1911, and the population of Mosman rose from 5,600 to 13,000 over the same period. Further north, the population of Willoughby, served by a railway line to Milson's Point, rose from 6,000 to 13,000. The old western railway line to Parramatta had already

69 SMH, 28 Aug 1913, Sydney City Council Newscuttings.
contributed to the development of the Western Suburbs in the latter half of the nineteenth century. This included the affluent areas of Strathfield and Ashfield, and in the new century the development of the suburbs to the west of the city continued apace. The population of Ashfield rose from 11,697 in 1901 to 33,658 in 1921, Strathfield from 29991 to 7594, and Burwood from 7521 to 15,735.

Trams further contributed to the settlement of the Western Suburbs, particular those that lay between the railway line and the Parramatta River to the north of the railway line. Areas developed this way included Leichhardt, whose population rose from 17,454 in 1901 to 29,358 in 1921. Another area developed in conjunction with trams was Drummoyne, situated on a peninsula between Five Dock Bay and Long Cove, north of Ashfield. An electric tramway running across Long Cove Bridge, after coming through Forest Lodge from the city, opened up Drummoyne in 1902. In 1910 the line was extended over the Parramatta River and taken to Top Ryde. Already in 1901 subdivisions in Drummoyne highlighted the impending construction of the tramway. The plan of the subdivision in March 1901 produced by the auctioneers, Richardson and Wrench, of the "Dawson Estate" on either side of Alexandra Street, near the head of the peninsula, contained an outline of the tramway in the 'course of construction'.

A significant feature of the development of Drummoyne is the influence of Thomas Henley, who became a Minister for Public Works in 1922. Henley built and owned over a hundred houses in the area and his investment in Drummoyne was instrumental in its development from the 1890's. The new ferry service was largely due to his efforts after his election as Mayor of Drummoyne in 1900. Henley also managed to re-unite the municipalities of Drummoyne and Five Dock in 1902 after they had split in 1890. The whole of the area between the Hen and Chicken Bay and Long Cove, including Abbotsford and Chiswick, was now under one local authority. Most of the houses built by Henley were semi-detached and conformed to municipal regulations by having a minimum of 32 foot frontage for a pair of cottages. A side entrance three feet wide was taken down on either side of the cottages. By 1912 these houses were assessed by the municipal council as having a value of £450. He charged tenants of the more recently constructed houses 15-17/- a week for rent. In the older houses, built before 1905, rents were a maximum of 14/- a week.

Situated nearby, between Five Dock and Ashfield, was Haberfield, perhaps the most illustrious suburban development of the period. Haberfield was intended by its developer, Richard Stanton, to avoid the monotonous similarity of house designs in other suburbs. Buyers could choose from a range of designs by the site architect, and although the designs bore the hallmark of one architect, at least the house owner could claim a sense of individuality that could not be obtained except in the more expensive localities to the north and east.

Stanton had been active in the Ashfield/Summer-Hill area for many years and he was elected mayor of the municipality of Ashfield in 1893 and 1894. The area of land upon which Haberfield was constructed, Dobroyd Estate, lay outside the boundary of Ashfield, on the northern side of the Parramatta Road. Stanton first bought into the estate in 1901 with the purchase of 50 acres contiguous with the Iron Cove canal. The residents were therefore able to use the Leichhardt ferry which travelled down the canal, as well as the steam tram which ran from Five Dock to Leichhardt Town Hall. Anyone who wished to travel further towards the city could catch the electric tram which ran from the Town Hall to Circular Quay. The second Haberfield Estate was opened in 1903, bounded by Parramatta Road, Ramsay Road and Sloane Street. By the following year many of the streets were kerbed and guttered and street lamps had been erected. A number of large and imposing houses were also built in this area, in order to attract residents of high status. One of these was T.H. Nesbitt, Town Clerk of the Sydney Corporation. In 1912 Nesbitt bought 'Lochlins', advertised as an example of 'Domestic Gothic' architecture, complete with cone shaped turrets. Nesbitt renamed the house 'Westminster'.

Stanton opened the third Haberfield estate in 1905-6 and gradually over the next decade the area bounded by Parramatta Road, Alt Street, Hawthorne Parade and Waratah Street was filled in with the single storey detached cottages that formed the Haberfield estate. The only exception to this rule was the two storey building erected on the Parramatta Road.

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Haberfield
Garden Suburb
The Place of Beautiful Homes

Beautifully Illustrated Pamphlet
and all Particulars from

STANTON & SON,
129 Pitt Street,
and Summer Hill.

Freestone, Model Communities, p. 163.

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for Stanton and his family, called 'Bunyas'. By 1905 the minimum value of the houses in Haberfield was put at £500 and the success of the venture, at least commercially, rubbed off on developers nearby. The nearby Northcote estate, subdivided in 1905, incorporated elements of Haberfield's layout and architecture. Advertisements for the estate highlighted the fact that it was 'nearly opposite the Haberfield Estate'. The Haymarket Land, Building and Investment Co. Ltd, who also bought into the Dobroyd Estate, followed the example set by Stanton. When it subdivided the Dobroyd Park Estate in May 1905 no building covenants were offered and the area was soon covered in the small single-fronted, weatherboard houses that predominated in so many of the other newly opened estates in the metropolis. After a number of years, however, subdivision was more highly regulated. The size of land blocks was increased and houses had to set 20-25 feet away from the boundary. When the company opened the nearby Dobroyd Point Estate in 1910 similar regulations were enforced and the estate as developed bore many similarities to the Haberfield Estate.

For all that, Haberfield had its critics. Alan Gould, a prominent architect in Sydney, thought that the estate was an 'excellent example of how a very good idea is ruined through its being taken up by a building company, which is naturally out for profit every time'. The natural beauty of the site and the trees were sacrificed to make way for the houses. In addition, he argued that although the houses were all of different design it was obvious that the designs emanated from one source.

Stanton accepted some of the criticism and for his next 'garden suburb' project, Rosebery, he employed John Sulman to design the layout of the estate. In many respects a more ambitious project than Haberfield, Stanton intended to have the 280 acre site developed as a 'model industrial suburb', combining factory sites and residential areas for those who would presumably work in the factories. To that extent Stanton intended to produce a garden suburb for the working class at Rosebery. The site was situated in the municipality of Waterloo, to the south of the city of Sydney, an area ripe for industrial development. According to

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72 Ibid, p.73.
73 Ibid, p.66.
PLAN
OF THE
LOCALITY OF ROSEBERRY

Town Planning Co. Rosebery.

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Sulman it was intended to place factory and business sites in the flat portions of Rosebery leaving aside the elevated portion for residences.75 Sulman's designs, the advertisements assured, 'will follow the graceful contours of the land and will make the most of every vista and outlook.'76 Eighty acres of the site was to be devoted to the wide roads, recreation grounds, and parks with which the estate was to be endowed.

A significant innovation in Rosebery was the import of pre-fabricated Californian bungalows for the first time in Australia. Semi-detached two storey houses were strictly forbidden as was weatherboard. As far as possible each house design was a variation on the other houses, placed within their own allotment often with a frontage up to 50 feet in width.77 Work began on the estate in 1912 and by 1922 there were over 1000 allotments on the site. A large sweet manufacturer bought twelve acres of ground and erected a factory on it. Other companies which bought into the estate included Wrigley's Spearmint Chewing Gum Co., Mark Foy Ltd and Mcleods, a soap manufacturer.

The scheme was something of a disappointment to those that were involved in its construction. Sulman was particularly disappointed that when the construction took place contours were ignored and the standard rectangular system of subdivision was adopted instead. He mused that 'any special character that would have differentiated this suburb from others is entirely lost'.78 Stanton was also disillusioned by his experience of Rosebery. In 1915 he admitted that that the scheme had not 'really reached the slum dweller'.79 He could not bring the garden suburb ideal to those on low incomes. It is probable that the lack of a railway line to the area was instrumental in stalling the progress of the suburb, as it did other suburbs to the south of the city. The southern area of the metropolis did not develop to the same extent as the railway driven suburbs of the south-west, west, and north, and the bland assertion of the advertising brochure that 'as everyone knows, Sydney's growth and expansion is in a southerly direction', proved illusory. This particular part

of Sydney did not have either the scenic or recreational attractions of the East or the railways of the west.

Thus the spread of the suburbs and the clearance of the city in the early years of the century up until the First World War raised complex issues. The changes and interplay of city and state relations, middle and working class values, market forces, progression and regression all played a role in the outcome of the city form. The initial suburbanisation to the north, east and west was undoubtedly an expression of aspirations for fresh air, outdoor pursuits and space. These aspirations were supported by the railway lines to the north, west and south-west. The expansion of the Eastern Suburbs, however, relied upon the burgeoning tramway system to connect it with the city and inner suburbs.

The expansion of the south west, Marrickville and Canterbury included, owed much to the extension of the railway line to Bankstown, but it was also an indication of the rise in the living standards of many of the working class in the early years of the century. The increased income, the ever increasing numbers of families combined with arcadian aspirations to fill up large tracts of the area. The working class exodus from the city was also the result of overcrowding, greatly increased rents and the power of industrial and commercial enterprise in the city and its environs. To this extent the suburbs were not necessarily an expression of improved social or economic status, but a reflection of a failure of the urban structure to fulfil the normal requirements of residential life in the city, in the face of overwhelming market forces. These latter forces, however, need not have been quite so predominant had there been less deferential attitudes to them on the part of the political elites of the day.
Chapter 8.

The Control of Sydney 1900-1919.

The alteration of the physical structure and the administration of Sydney encouraged the Government to take an active role in its development. The Department of Public Works was affected by the intervention of the Government more than most, but local government was also confronted with it. The more direct role taken in local government was underlined by the formation in 1916 of a Ministry of Local Government, the first of its kind in Australia. The new ministry eventually produced the *Local Government Act* 1919 which at once gave increased powers to the local authorities, but at the same time, gave the state powers of determination over the function of each local authority in Sydney. The new legislation paved the way for government control of the city and the suburbs, and, as a consequence, the social, political, and economic interests of the New South Wales Government were brought to bear upon the physical structure of the city.

The tendency of the Government to arrange the powers connected with the urban structure as it saw fit did not go unopposed. As early as 1894, Thomas Hughes raised the question of the gradual loss of powers experienced by the City Council since the 1870's. The control of water and sewerage had already been lost to the MBWSS, while the powers of fire protection were lost to the Fire Brigades Board. Hughes believed that it was also possible that the City Council might soon lose the the privilege of supplying electricity to the city. The remedy, Hughes suggested, was the formation of a Greater Sydney, to include many of the local authorities in the metropolis. In this way all the powers relating to Sydney would be retained by a more powerful and more comprehensive local government.

The plethora of groups operating within the city tended to lead to a sense of powerlessness on the part of the City Council. It seemed to be losing the power to have any influence over the way the city was being used, or abused. Many of these authorities had taken privileges away from the City Council and they were now being put to use within the city.

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The position of Sydney is unique, being bounded on the one side by the Harbour Trust, and on three sides by suburban municipalities, cut into at three different points by the Railway Commissioners, and the heart of it enjoyed by the Federal Government, whilst underneath its surface area the last named power, the Water and Sewerage Board, the Gas Company, and various other companies hold full sway, and all at the cost or inconvenience of the ratepayers.3

The City Council did not, however, set about achieving the goal of a Greater Sydney, which appeared to be the most feasible way of retrieving some of its lost powers, with any enthusiasm. The initial stimulus for a Greater Sydney emanated from the suburban municipalities. The first comprehensive plan for a Greater Sydney was written by George Christie, alderman for Strathfield. In 1898, in a series of articles in the Daily Telegraph, and later in a pamphlet, Christie outlined a scheme for a comprehensive authority over the whole Sydney area. He proposed taking an area of 160 square miles, which contained a population of 450,000, including the city and forty one municipalities. He proposed to divide it into twelve districts. Each district would elect an alderman and three councillors to a metropolitan council which would then take over the normal functions of local authorities, but also those of the statutory authorities, government departments, and private enterprise that were essential to municipal management.4

John Griffin, Mayor of Hurstville succeeded in calling the first of the many conferences to consider the question of a Greater Sydney in 1898. Griffin persuaded Hurstville Council to hold a conference on the subject and invitations were duly sent out to all the municipalities. The conference was held in late 1898 and a draft scheme was drawn up. The scheme envisaged the division of the metropolitan area into wards and boroughs, each returning an alderman for three years. The Greater Sydney Council would take over all the normal functions of the local authorities, but also those of the Water and Sewerage Board, Transit Commissioners, Metropolitan Fire Board, Tramway Department, Telephone Department, park trusts, Harbour and Rivers Department

3 Select Committee on Greater Sydney, NSWLA, 1912, Appendix H, Letter to the Sydney Morning Herald by Robert Moodie, July 1902, p.245.
branches controlling foreshores, locks, and those of the Roads Department concerned with roads and bridges.  

A similar movement for a greater metropolitan council existed in Melbourne. Much of the impetus for a Greater Melbourne had its roots in a dissatisfaction with the Melbourne and Metropolitan Board of Works, the body responsible for the supply of water and sewerage to the metropolis. Based on accusations by the Age newspaper the Victorian Government opened an inquiry into the operation of the Board of Works and although the inquiry exonerated much of the Board's past activities, it suggested that the Board would soon be an anachronism. The inquiry members agreed with the Age that some form of Greater Melbourne would soon take the place of the statutory bodies. The success of the Melbourne Board of Works in carrying out its work meant that, in fact, it was fast making itself redundant.

In addition to the problem of statutory authorities, difficulties existed in the system of municipal administration. By 1900 there were over 40 municipalities in the Sydney area and cooperation between them was not always evident. This was especially so in the case of roads. In 1918 it was noted by John D. Fitzgerald that:

Nowhere in the world is there a city whose services are so chaotic as Sydney's. Thirteen separate councils exercise a mixed control over one main arterial road, namely Parramatta-road, eight or nine other councils divide responsibility for the main south arterial road; and the responsibility for the northern arterial road is shared again by a number of councils. It is known that the streets of the central commercial zone are too narrow to carry on the commercial services efficiently. Royal Commissions have reported on this. Traffic is held up; economic waste is caused, and it can be safely said that millions are lost to the state annually. In these times of universal reconstruction, it would be folly not to seek to provide a system suitable for to-day.

A source of much of the friction was due to the disproportionate amount of responsibility that some municipalities bore for road

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5 Larcombe, ibid, p.163.
7 Dunstan, Governing the Metropolis, p.290.
8 Much of the work needed to establish the infrastructure of Melbourne had been completed and the work of the Melbourne Board of Works was nearly at an end. Indeed the sewerage of the metropolis had begun in earnest in 1898, just a year before the inquiry, and much of the inner suburbs were connected to the sewerage system by 1900.
9 Dunstan, Governing the Metropolis, p.291.
10 SMH, 18 June 1918, p.8.
maintenance. This was particularly true of the municipalities which had the main arterial roads passing through them.

The main routes with their through traffic are an unfair burden on the individual municipality. The widening of such a death-trap as Cook's River road is a task which is beyond the power of a small municipality, and is among the obligations of the whole metropolitan area. Divided control and divided responsibility in regard to boundary roads are a cause of friction between municipalities, and are a source of neglect and disrepair.\(^\text{11}\)

Finally, a significant factor in the debates of Greater Sydney is the reform of local government taking place in Britain and Ireland in the late nineteenth century. This is especially the case of London, a metropolis plagued by a complex range of jurisdictions. In 1888 the 'Ritchies Act' led to the formation of elected County Councils in England and Wales, and this was extended to London. The complexity of the London system of local government, however, led to a Royal Commission, appointed in 1893, to see how London could be further reformed. This commission recommended the formation of a corporation to oversee the whole London area, taking the place of the County Council and the older City of London Corporation. Nothing was done about these recommendations as the Rosebery Government responsible for the appointment of the commission lost office shortly afterwards. In 1899 the Salisbury Government passed the London Government Act which greatly rationalised the various vestries and parishes in London. Some parishes were constituted, while others were amalgamated to form metropolitan boroughs.\(^\text{12}\)

Many of the early advocates of Greater Sydney tended to draw their inspiration for the concept from the events in London and Britain

\(^{11}\) *Royal Commission into Greater Sydney, NSWPP*, Vol.2, 1915, p.xvi. Fitzgerald eventually managed to introduce provisions for a Main Roads Board when he became minister for local government. Such a board was proposed in his *Local Government Act* 1919, controlling the width of tyres, the weight of loads, and hoardings. Like many similar proposals before it, however, this road authority failed to be enacted. The sections dealing with it were withdrawn in order to allow the *Local Government Bill* to proceed safely. Some of the provisions were considered in 1922 but were dropped due to the strength of opposition to them. It was not until 1924 that the government managed to pass a bill with provisions for a Main Roads Board, but this was directed at country areas rather than the metropolis. The main roads of Sydney continued to be treated as part of the activities of the local authorities, under the watchful eye of the Department of Local Government. Maiden, *Local Government in NSW*, p.124.

\(^{12}\) An account of these changes and local government in Britain and Ireland is given by Thomas H, Nesbitt, Town Clerk of Sydney Corporation to the Select Committee on Greater Sydney, 29 July 1902. *NSWLA*, 1912. pp.67-90.
generally. John D. Fitzgerald, who was to become the most outstanding advocate, drew his inspiration from his visit to Britain in 1890 as a delegate of the striking maritime workers. Fitzgerald was introduced to some of the ideas on local government being discussed in England by John Burns, later to become Minister for Local Government. Immediately on his return to Australia in 1892, Fitzgerald sounded out the editor of the *Daily Telegraph*, for a campaign for a Greater Sydney. George Christie also derived his ideas from the London experience to arrive at his Greater Sydney plans. American influence was present in the works of John Griffin, who believed that the more thoroughly formed New York Council was superior. From 1896 New York council controlled all the services within a unified area of some 322 square miles. As far as Griffin was concerned the London scheme only went 'half-way' to solving the problem.

The Greater Sydney Debates 1900-05.

The new century opened with a conference in January 1900 with aldermen from both the city and suburbs. The conference was organised by John Griffin as an attempt to resolve the differences that had emerged between the city and suburbs over the issue in the last year. Put briefly, the City Council pushed its way into the forefront of Greater Sydney, just as the earlier Griffin conference was coming to its conclusion. The City Council had remained aloof from the first conference, and 'adopted an exalted attitude towards the suburban municipalities'. When the conference was in its closing stages, however, Matthew Harris, the Mayor of Sydney, produced a rival plan. This involved the unification of the city and 40 other municipalities to form a single large Sydney Metropolitan Council. Harris believed that this was the only way local government could retrieve the powers lost to it in recent years. Like the council suggested by the suburbs, the new scheme involved the replacement of the Water and Sewerage Board, Metropolitan Fire and Health Boards, the Transit commission as well as all the functions of the municipal councils. Many of the suburban representatives were not all keen on the 'unificationist' scheme, as they feared that this was really a plan for the

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13 Fitzgerald Papers, ML, Ms. Q 250.
aggrandisement of the city at the expense of the suburbs. Thomas Henley was particularly opposed to the idea, despite his general sympathy for a Greater Sydney. The unification of the municipalities, he believed, would simply create a monster in the form of a works department.

To bring about any scheme of Unification would mean setting the Municipal clock back for fifty years. We might just as well be governed from a State Works Department in Bridge Street, as a huge Municipal Works Department at the Town Hall, over which the property-owners would have no say. Such a process would simply mean handing over our property to the lodger voters and the Trades Hall agitators, to enable them to carry out wildcat revolutionary socialism.\(^{16}\)

In response to the 'unificationist' scheme Griffin suggested a conference of some of the draftsmen of the original 1898 plan, including Griffin, and some of the city aldermen, including Matthew Harris and Thomas Hughes.\(^{17}\) After much discussion this conference arrived at a compromise plan. Thomas Hughes, John Stinson, and John Griffin were the primary draftsmen behind the scheme. It was very similar to the earlier Harris scheme and involved the election of three aldermen each from twenty five wards to the City of Sydney Council for three years. The City Council would have the power to derive rates from all bodies concerned with street digging, such as the Railway Commissioners and the AGL. It would also have the normal municipal functions as well as those of the *ad hoc* bodies that had sprung up in recent years. In addition, the new City Council would also have powers to resume slums, widen and improve streets, establish a labour bureau as well as regulate noxious trades, dairies and milk supply.\(^{18}\) Not only did this plan appear to be an ambitious form of Greater Sydney, but it was also an attempt to install an English style local government in Sydney, complete with all the increased powers enjoyed by local authorities in Britain.

The scheme was unashamedly 'unificationist' in intention. According to the authors, unification was 'the only satisfactory solution to the problem of effective municipal government'.\(^{19}\) Their feelings were so strong on this matter that they forwarded the plan to the Premier immediately without awaiting discussion and possible amendment by other aldermen. The scheme was not, however, accepted by all the delegates. Isaiah

\(^{16}\) Thomas Henley, *Greater Sydney or What?*, 20 August 1909, Sydney, pp.9-10.


\(^{18}\) Ibid, p.168.

\(^{19}\) Ibid
Reginald Cohen, alderman for Annandale, registered his protest against unification, and was later to become an outstanding opponent of it. Another delegate, Henry Willis, a suburban alderman, produced a minority report. Willis favoured unification but he objected to the scheme on the grounds that it would perpetuate city dominance of Sydney.20

Those that favoured a Greater Sydney, but without the over-weaning power of the city, called a Metropolitan Municipal Reform Conference in May 1900, the object of which was the 'consolidation and control of all large services common to municipal life, and powers analogous thereto, under a federal form of municipal government'.21 The draftsmen for this conference were Isaiah Reginald Cohen, Henry Davis, Mayor of Petersham and Thomas Henley, then Mayor of Drummoyne. Their scheme was in many respects similar to the compromise scheme drawn up earlier in the year but it had important provisions respecting the autonomy of the local councils. The representation of the city in the new council was also limited to a quarter of the members, again as a precaution against the influence of the city.22

What clearly emerged from these debates was the generally favourable attitude to the idea of Greater Sydney in all quarters. There were some implacable opponents, such as Redfern and Glebe Councils, both of which were in danger of being swamped by an enlarged City Council. This implacability was uncommon, however, and the only real source of dispute was the question of city and suburban jurisdictions. The Sydney Morning Herald reported in March 1903 that the subject 'has already been fully discussed and ventilated'. All possible arguments had been exhausted. Furthermore each councillor and alderman appeared to have their own set of proposals on the subject. According to Fitzgerald the issue had been discussed so often, and so many conferences had been held on the issue that:

...it is understood that every city and suburban alderman has a constitution concealed in his desk. If you wake an alderman up in the night and say "Greater Sydney!" he murmurs, "Third portfolio to the left" (Like Moltke), and goes to sleep again.23

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20 See correspondence of Cohen and Willis, Select Committee on system of municipal government for Greater Sydney, 1902, NSWLA, 1911-12, pp.234-6.
21 Fitzgerald, Greater Sydney and Greater Newcastle, Sydney, 1906.
23 SMH, 22 March 1902.
The multitude of plans, however, eventually proved to be the downfall of Greater Sydney. The 'beautiful unanimity' on the subject, as Fitzgerald described it, was simply a disguise for apathy.\textsuperscript{24} It was precisely the lack of agreement on what a Greater Sydney should consist of that caused the delay in its formation. This became especially obvious during the course of an enquiry by a select committee in 1902. John Dacey, Chairman of the committee became exasperated at the loose and undefined use of the phrase 'Greater Sydney' during the course of the enquiry. Dacey was outraged when he was told that the Glebe Council held a plebiscite among the ratepayers on the topic, simply by asking if they favoured Greater Sydney without making any attempt to define what this meant. He asked Percy Lucas, a long standing alderman for the Glebe, if he would be 'astonished to hear that scarcely two witnesses who have been here have the same ideas on the question?'.\textsuperscript{25} Dacey went on to say that the 'foremost men in this movement come here and propound different schemes to us'.\textsuperscript{26} In the face of such confusion it was difficult to legislate for a Greater Sydney, even though it was acknowledged by all concerned that some form of Greater Sydney was necessary.

The delay in reaching a solution, however, appeared to harden the positions taken by the main protagonists. John D. Fitzgerald, and the other city advocates such as Thomas Hughes and Richard Meagher had their strong unificationist beliefs reinforced by the arrival of Thomas Nesbitt, the new Town Clerk for Sydney City Council, from England in 1902. Nesbitt had been City Comptroller to the Westminster City Corporation before his appointment to the Sydney post. Nesbitt was taken aback by the relatively few powers possessed by his new employer compared to those in England.\textsuperscript{27} It is not therefore surprising that shortly after his arrival, Nesbitt decided in favour of unification. To Fitzgerald, here was proof, if proof was needed, that unification was the only feasible solution. Nesbitt knew more than most about the machinery of local government in London, the source of much of the inspiration behind the idea of Greater Sydney.

\textsuperscript{24} Ibid.
\textsuperscript{25} Select Committee on Greater Sydney, 1912, p117.
\textsuperscript{26} Ibid.
In response to the intransigence of many of the city protagonists a campaign against Unification was organised by the suburban authorities. In March 1902 Henley told Fitzgerald and his supporters that he:

...had just visited and addressed between 40 and 50 of the suburban municipal councils, and they unhesitatingly stated that they would have nothing to do with a unification scheme. They have nothing to gain but a great deal to lose in unifying the smaller and purely local works.\(^{28}\)

This city-suburban divide was the rock upon which Greater Sydney foundered. The franchise became a significant issue in the later debates but the delay in the implementation of the Greater Sydney ideal, when the time was ripe for it, in the first five years of the century, was due to the different expectations of the city and suburban aldermen and councillors. The poor response of the suburbs to the 1913 Royal Commission, when the majority of municipalities either refused to give evidence, or gave evidence in opposition to Greater Sydney, only served to underline the point. When Arthur Griffith introduced a Greater Sydney Bill in 1915 the suburban councils were again vociferously opposed to the scheme, and their opposition certainly played a large part in the eventual downfall of the bill.\(^{29}\) Again in 1918 when a second Greater Sydney Bill was being drafted, the opposition of the suburban councils was prominent, and the continued opposition probably contributed to the failure of the bill.\(^{30}\)

Other factors which probably contributed to the defeat of Greater Sydney were the aggrandising tendencies of the unificationists. Sydney was simply too large a city, relative to the state as a whole, to be left to the councillors and aldermen to do with as they pleased. When Joseph Carruthers introduced his Cities Extension Bill in 1905, it received a severe battering from John Dacey on precisely this point. The Cities Extension Bill provided for a convention, to be composed of fifty delegates elected by the citizens, to draw up a constitution for Greater Sydney. Dacey was sympathetic to Greater Sydney, but he was opposed to the formation of what was effectively a secondary legislature for Sydney. To Dacey, the bill implied that the assembly had not the proper

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\(^{28}\) *SMH*, 24 Mar 1902.

\(^{29}\) Larcombe, *The Advancement of Local Government to the present*, p.193.

\(^{30}\) John Garlick, Under-Secretary to the Department of Local Government, attempted to organise a deputation to the government 'in view of the agitation which is being got up by the suburban councils against Greater Sydney'. Fitzgerald pps, ML, correspondence, Ms Q258.
authority to legislate for the metropolis. He asked his fellow parliamentarians:

Is the duly elected Parliament to stand idly by while a number of aldermen assemble and do what? To say who shall control work of the greatest magnitude,—the management of the trams, the Water and Sewerage Board, and the Harbour Trust.31

Or as John Storey put it, 'such a convention would be another Parliament'.32 According to Dacey the aim of Fitzgerald, Meagher and Griffin was the imposition of an English style local government upon New South Wales, with greatly increased powers. Dacey believed that these men overlooked the enormous gap between the political systems of the United Kingdom and Australia.

In the United Kingdom they have no state parliaments, and wide powers are conferred upon the various municipal bodies to pass what really amounts to laws, because the Imperial Parliament has not time to deal with them. To compare this Legislature to the Imperial Parliament is like comparing a molehill to a mountain.33

The position of the suburban advocates, on the other hand, seemed a more reasonable one. It did not threaten the autonomy of the state. All that they required was some form of authority to control 'inter-municipal' services. In Sydney a common proposal was the formation of a works department to control and co-ordinate the activities of the various authorities. In 1903 some councils suggested the election of municipal alderman to form a metropolitan Board of Works to 'control inter-municipal services'.34 This was similar to the Metropolitan Board of Works suggested by Norman Selfe. Selfe believed that all the works affecting the roadways could be co-ordinated under one central body and planned to make the least possible inconvenience to the public.35 This 'works' authority, however, would never take on the powers of a legislature, which Dacey feared.

31 *NSWPD*, 1906, Vol 6, 3361.
32 Ibid, 3366.
33 Ibid, 3364.
34 *DT*, 15 July 1907, p.3.
35 The problem of digging up the streets was allayed to some extent by the holding of conferences at regular intervals by those who were responsible for the digging up of the streets. *Report of the Royal Commission of Inquiry into the question of the constitution of a Greater Sydney*, *NSWPP*, 1915.
The City Council, however, was given the power to expand under the *Local Government Act* 1906. It was given this right after Thomas Henley told the Legislative Assembly that he believed the City Council should be given 'the power to grow out - that is to take in the adjoining suburbs which are agreeable to amalgamation with it'. Consequentially, an amendment, Division 3, Clause 18 of the act, gave the power to 'unite to the City Of Sydney the whole or any part of a Municipality adjoining each city'. Significantly, it accorded with the view of Carruthers that a Greater Sydney would be best brought about through the expansion of the city. He told Fitzgerald in 1907:

> I must say at once that my ideas are not quite orthodox re Greater Sydney itself. I am more in favour of City Expansion first by the absorption of Glebe, Camperdown, Darlington, Paddington and Redfern, and then of a Greater Sydney Body which will not absorb but will have a separate sphere of action.

The hopes of Carruthers that his Local Government legislation of 1905-7 would pave the way for a Greater Sydney were not, however, to be realised. The provision for cooperative action between municipalities in the *Local Government Act* 1906 were largely ignored by the municipalities, and the areas adjoining the city remained resolutely opposed to amalgamation, with the exception of Camperdown, which was incorporated in 1908. By 1906 the Greater Sydney movement had ground to a halt and it would take some very powerful initiative to make it move again. The suburban municipalities had received the powers to join hands for services if they wished and any further agitation on their part was extremely unlikely since it might well lead to some loss of powers. They had just received a reinforcement of their autonomy under the Carruthers legislation and there was little inclination to put this in jeopardy. According to Thomas Henley the end result of the debates from 1898 was in fact the *Local Government Act* 1906. The Greater Sydney debates paved the way for the 1906 Act, 'which gives to the city, the

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36 *NSWPD*, 1906, Vol 24, 3374.
37 Henley, *Greater Sydney or What*, 1909, p.11.
38 Joseph Carruthers to J. D. Fitzgerald, NSW Legislative Assembly, 17 Oct 1907, Fitzgerald Pps, Ms Q.
39 For a brief account of the new legislation see Larcombe, *The Stabilisation of Local government* pp.197-309.
suburbs, and country Municipal areas a system of Local Government which is both effective and far-reaching'.

The Greater Sydney League.

Nevertheless, the quest for a Greater Sydney did not end completely. The conclusion of the Improvement Commission in July 1909 sparked off another round of the debate. Thomas Hughes, the Lord Mayor of Sydney, who had been chairman of the commission, saw its recommendations as evidence for the need of a Greater Sydney. On 19 July, Hughes moved in the City Council 'that in view of the report of the Royal Commission it is necessary that immediate steps should be taken to create a Greater Sydney in some form'.

A Greater Sydney League was formed shortly afterwards, consisting, among others, of Hughes, Fitzgerald and John Sulman. It also included William Morris Hughes, George Taylor, an architectural journalist, and John Wheeler, vice-president of the Municipal Association, and a member of the Improvement Commission.

Why Thomas Hughes thought that the Improvement Commission necessitated a Greater Sydney is clear from its recommendations in relation to roads. The commissioners noted that 'no scheme for the improvement of the traffic conditions of Sydney would be complete that failed to take into account the main roads and arteries leading to and from the city'. The commissioners suggested widening the main roads to 100 feet 'where practicable', and planting trees on either side of them. The roads considered suitable for this treatment lay in every direction from the city, such as the Parramatta Road, Old Canterbury Road, Liverpool Road, Gardener's Road, Ryde Road, and Military and Willoughby Roads in North Sydney, well beyond the city. The Royal Commission suggested the construction of a tunnel under Edgecliff Hill, Woollahra, in the Eastern Suburbs, in order to have a direct connection between New South Head Road, and Holt Street, Woollahra. This would do

40 Henley, Greater Sydney or What?, 1909, p.2.
42 Sulman later resigned from the League as he favoured a Royal Commission to enquire into the question of a Greater Sydney, rather than a convention, which was the aim of the league. Fitzgerald pps, ML, correspondence, Ms Q252, John Sulman to J.D. Fitzgerald, 26 Aug 1909.
away with the present circuitous route taken by the tram to Ocean Road. It also suggested an extension of Womerah Avenue in Paddington, to connect Barcom Avenue with Victoria Street. It was impossible, however, to conceive of a concerted effort to improve these roads under the present arrangements. Another factor leading to the renewed enthusiasm for Greater Sydney was the endorsement the City Council received for its own improvement schemes. This included the widening of Oxford Street as far as the city boundary which highlighted the superior resources, and greater willingness, of the City Council to improve the urban infrastructure.

The City Council had also been impressive in its transformation of Camperdown. The Municipality of Camperdown was amalgamated with the city in December 1908, as a result of its indebtedness. Although there was a willingness on the part of the Camperdown councillors to improve the state of the area, much of it was allowed to fall into disrepair as a result of its precarious financial position. Thomas Nesbitt later described the state of the roads in the area prior to amalgamation:

Very few streets in the borough were safe for vehicular traffic, except those in a virgin state, and even in these the greatest care was necessary. The roads generally, indeed without exception, were in a most deplorable condition, so bad indeed that it was practically impossible to take a vehicle out at a slow walk even. Some of the streets and roads were nothing more nor less than switchbacks, and in wet weather mud-holes and quagmires in abundance were unduly conspicuous.44

Within the space of a few years all the principal 'thoroughfares' in Camperdown had been reconstructed. Parramatta Road was widened as far as the boundary of Petersham. Pyrmont Bridge Road was extended. Stormwater sewers were laid down, and some areas were resumed for remodelling.45 The area was effectively transformed by the amalgamation.

Camperdown was not the only area contiguous to the city that fared badly by comparison with the city. While Nesbitt admitted that the city was far from perfect, there were parts of Glebe that could only be described as 'an abomination'.46 There was no doubt in his mind that the

44 Evidence of Thomas Nesbitt, 16 July 1913, Royal Commission on Greater Sydney, p.213.
value of Glebe would also increase with remodelling. Evidence of the potential benefits of city expansion was there for all to see.

When the Labor party led by McGowen came into office in late 1910, the advocates of Greater Sydney had at last found a government positively in favour of their aims. When McGowen received a deputation of the Greater Sydney League in November 1910, he assured it that he 'did not think there was any diversity of opinion as to the necessity for a Greater Sydney. All shades of political opinion were agreed on the point'.47 The commitment of the Government to the cause was underlined when the Western Suburban Municipal Association sent representatives to Arthur Griffith, Minister for Public Works, later the same month. The representatives asked Griffith to consider the possibility of government support for the maintenance of the main roads leading to their respective districts. The association may not have had Greater Sydney in mind, but Griffith responded to the deputation by stating that the Government intended to introduce a Greater Sydney Bill in 1911.48 Despite the observation by the editor of the *Daily Telegraph* that its advocacy was now 'somewhat significantly confined to a few enthusiasts',49 the chances of success for Greater Sydney were greater than ever now that it had the support of the State government.

The support of the Government for Greater Sydney may have had more to do with ideological concerns that with any interest in the administration of the metropolis. Greater Sydney was invariably promoted by Griffith alongside provisions for a broader local government franchise. The McGowen government did not at first introduce a bill making provision for a Greater Sydney, but instead sought to establish a convention, to be elected on the broader parliamentary franchise to consider what form it should take. According to F.A. Larcombe, the historian of local government in New South Wales, the Labor policy of 'one man, one vote', was in fact the most controversial aspect of the bill.50 Various amendments proposed to the franchise provisions were not accepted by the Government, and the Legislative Council, which was opposed to the wider franchise, therefore blocked the bill. The 1915 *Greater Sydney Bill*, again promoted by Arthur Griffith, also contained provisions for 'one man, one vote'. Among the reasons for the eventual

47 *SMH*, 4 Nov 1910, Sydney City Council Newscuttings.
48 *DT*, 16 Nov 1910, Sydney City Council Newscuttings.
49 *DT*, 4 Nov 1910
defeat of the bill was, not surprisingly, conservative opposition to the new municipal franchise. Undeterred by the defeat of the bill, Griffith immediately introduced a local government bill with similar franchise conditions.51

The Royal Commission on Greater Sydney 1915.

The appointment of a Royal Commission by McGowen in May 1913 to draft a constitution must be seen as part of a Labor strategy to extend the adult franchise to the municipalities. The commission would provide the Government with another expedient for the introduction of Greater Sydney, but also for the adult franchise. The appointment of J.D. Fitzgerald as chairman of the commission ensured that the commission would look upon Greater Sydney favourably. The other members of the commission consisted of A.A. Cocks, Lord Mayor of Sydney, and Professor J.B. Peden, a lawyer. Fitzgerald was unwell, and he left the country for a vacation in Europe shortly after the commission was underway. John Leitch, an alderman of Redfern replaced him until his return. Fitzgerald, Cocks, and Leitch had all been members of the Greater Sydney League, and the composition of the commission suggests that its function was more a piece of propaganda than an examination of Greater Sydney. It is notable that Fitzgerald managed to persuade the commissioners that the scope of the Royal Commission was not to question if a Greater Sydney should be brought into existence. Instead the commissioners were to 'presuppose that a Greater Sydney is to be brought into existence'.52 Richard Meagher later echoed these sentiments when he stated that a Greater Sydney was 'practically an accepted axiom'.53

It is little wonder that the response of the municipalities to the commission was wary in the extreme. The recommendations of the commission were a foregone conclusion, and many of the municipalities had no wish to be part of the exercise.

The Commission recorded that about three-quarters of the councils sent representatives but the number actually giving evidence was fewer. Taking the fifty-two suburban units eventually selected for inclusion, there were no witnesses from Newtown, Waverley, North Sydney, Baulkham Hills, Dundas, Kogarah, Ku-ring-gai, Lane Cove or Manly. Three

51 Ibid, p.194.
52 Royal Commission on Greater Sydney, 1915, p.xlii.
53 Ibid, p.84.
councils, Bexley, Bankstown and Prospect-Sherwood, did not reply to the invitation; Petersham gave a mere acknowledgement; Botany and Ryde appointed representatives who failed to appear; the representatives of Homebush and Hornsby made submissions; Rookwood's mayor, Henry Larcombe, strongly protested but refused to give evidence; opposition to any scheme was expressed by Ermington-Rydelmere, Mascot and Parramatta. Paddington and Redfern refused to be represented, though the latter favoured the principle. 54

Many of those who gave evidence to the Royal Commission were also either opposed to, or uneasy with, the prospect of Greater Sydney. Larcombe estimated that of the thirty six municipalities and shires who were represented, thirteen councils were opposed to the scheme, seventeen objected to being included, and only four were really in favour of the idea. 55

The bulk of the enquiry consisted of an examination of the legal and financial aspects of local government in Sydney. It was inevitable that legal matters were discussed as both Professor Peden and J.D. Fitzgerald were lawyers. The extent to which the commission examined the intricacies of local government finances is somewhat unexpected since little attention could therefore be given to the structural improvements which would follow on from a Greater Sydney. Only one representative of the DPW, R.E. Jones, Chief Engineer for National and Local Government Works, gave evidence. Jones had been connected with the Roads and Bridges Branch for over thirty years and his evidence was entirely to do with roads. Jones was now part of the local government branch of the DPW, serving under Garlick, who was head of the branch. This branch, formed in 1906, was responsible for providing councils with the materials and labour to recondition roads in the municipalities. Costs were defrayed and the branch recovered half of the expenditure by instalments from the councils through which the roads passed. 56 Jones was not a particularly enthusiastic supporter of Greater Sydney. When asked for his views on the matter, he replied rather meekly that 'a beneficial change is certainly desirable'. 57 In the case of main roads, this did not necessarily mean a Greater Sydney, but could simply mean some

55 Ibid.
form of roads authority such as that proposed by the Holman government in 1914.\textsuperscript{58}

Other witnesses included William Holmes, Secretary to the MBWSS, who gave evidence entirely on the question of rates. T.R. Johnson, Chief Commissioner for Railways and Tramways provided evidence on the question of the trams, and their cumulative effects on the roads of Sydney. The commissioners and engineers of the Sydney Harbour Trust were conspicuous by their absence, as were the influential engineers of the DPW who had had such a marked impact on the metropolis.

Apart from the roads, the question of the infrastructure was most often raised in relation to the issue of 'town planning'. A particularly outspoken proponent of a system of town planning was Charles Henry Caswell, a civil engineer with the DPW, who gave evidence as a representative of the Surveyor's Institute of New South Wales.\textsuperscript{59} Caswell insisted any form of Greater Sydney should take seriously the responsibility for future long term planning of the city's structure.

In the creation of a Greater Sydney scheme, I take it that the adornment of the city and the reorganisation of its thoroughfares and channels of traffic is of equal, if not greater, importance than that of administration; the health, happiness, and convenience of the vast population which will be attracted by its natural potentialities should be catered for, and the cultivation and education of the citizens of Sydney in Civic Art should be a matter of importance in the administration of the Greater Sydney body.\textsuperscript{60}

George Sydney Jones, President of the Institute of Architects, went further and suggested the formation of a special board of professionally trained men to control the general lay out of the city and its environs. The board should also advise the new Greater Sydney council 'in all matters of civic art, including city improvements, the control of street effects, continuity of line in buildings, and also to assist in the setting apart of special sites for special buildings'.\textsuperscript{61} In effect, Jones argued for

\textsuperscript{58} The first Holman Ministry (Labour) attempted to introduce a Main Roads Board consisting of 4 members under Ministerial authority. The local councils were to be given considerable authority in relation to the construction of roads, but the Board would have the ultimate say in the allocation of grants. This did not meet with the approval of the local councils and the idea of the Board was dropped.

\textsuperscript{59} Evidence of C.H. Caswell, 16 June 1913, \textit{ibid}. It is worth noting that Caswell, along with Walter Scott Griffiths cooperated on the No 10 design for the Federal Capital competition. The minority report gave them first place, p.126.

\textsuperscript{60} \textit{Ibid}, p.128.

\textsuperscript{61} Evidence of G.S. Jones, 7 July 1913, \textit{Ibid}, p.168.
the injection of architectural values into the process of city building. He cast an envious eye on the European cities with statutory town plans, especially Berlin. 'Architects', Jones said, 'generally look to Berlin as one of the most satisfactorily-managed and up-to-date cities in Europe'.

Town Planning, he believed had 'a large bearing on the welfare of all citizens of the Sydney of the future.' For this reason, he envisaged that all improvements, by public or private agencies should conform to some future plan or scheme for the metropolis.

Arthur Anderson, Vice President of the Institute of Architects of New South Wales also stressed the need for a Greater Sydney in order to regulate the urban structure. The members of the Institute of Architects, worked with an eye:

...not only to the embellishment of the metropolis, but to ensure convenience and despatch in the business of the city, to promote the health of its inhabitants, and to secure the attainment of the beautiful wherever practicable.

In order to pursue these lofty aims, 'to attain the beautiful', it was clear that the metropolis had to be taken as a whole. It was impossible to conceive of a plan for Sydney where the North, the East, the West, and the South were considered separately. This had serious consequences for Sydney Harbour, since this was by its very nature a division. Those that lived on the northern side of the harbour often did so because the harbour cut it of from the city. Adam Ogilvy, a member of Manly Council, reminded the commissioners of the raison d'être of his suburb.

...Manly is divided from Sydney by water, a distance of about 7 miles by the route taken by the Manly ferry-boats, and has nothing in common, strictly speaking, so far as municipal government is concerned, with the city and its adjacent suburbs, divided only by the half width of a street from each other. In the city it is hustle and bustle; people come to Manly to escape this, for relaxation and enjoyment.

The architects who sought to establish a metropolitan plan without boundaries had to confront the implacable opposition of the Sydney Harbour Trust. The harbour itself was in its control but the Trust let it be known from the start that it was not interested in being part of Greater

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Sydney. In 1902 it argued that it 'could not be efficiently worked under a Greater Sydney administration'. Several of the town planning advocates, both architects and engineers, however, were adamant that the harbour must be part of the plan. As Walter Scott Griffiths, a 'Town Planning Engineer', put it, 'it is no use laying down a scheme and then having the Harbour Trust come along and constructing ugly wharves.' A similar case was made for the inclusion of North Sydney in any scheme:

Any town planning scheme that may be laid down in connection with the foreshores would have to be treated from the centre. The northern side would have to be taken into consideration. If one body were to lay down a scheme independent of the other it would not harmonise. It would be a lop-sided arrangement.

Caswell, in a more incisive analysis of the function of the harbour, questioned the whole *raison d'etre* of the Sydney Harbour Trust. He argued that Sydney Harbour was not in fact suitable for commerce. The grades on North Sydney from the foreshore up were too steep. The manufacturing base of Sydney should centre around Rose Bay, and in a prophetic remark, he suggested that in order to make provision for even larger ships, the focus of shipping should be on Botany Bay, and not Sydney Harbour:

Botany Bay could easily be converted into a very good harbour, because it has a fair depth of water there. Provision could be made for the accommodation of shipping there, and so relieve Sydney Harbour from the possibility of destruction by the interests of commercialism.

The commissioners did not agree that the Sydney Harbour Trust should be abolished, but along with most of the other other statutory boards, it suggested that some changes could be made to make it more answerable to local government. On the other hand, the commissioners granted the need for town planning a high priority, along with public health, the North Sydney connection, and 'main and cross routes'.

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planning was necessary, not only to remedy past defects, but also to ensure that future developments should be carefully laid out. Town planning was in fact both a cause and effect of Greater Sydney.

Town-planning will make for health, convenience, amenity, and economy—its value is incalculable, and its cost comparatively small. Its urgency is a strong reason, both for a Greater Sydney being brought into existence and for the new body giving it immediate and earnest attention.71

Similarly with roads, Greater Sydney was an ideal method for dealing with metropolitan roads. The commissioners recommended that a fee-simple be imposed upon all metropolitan roads, the width of tyres and the weight of loads be regulated, that the digging up of the streets should be some extent controlled by the new council, and new tramway routes should also be subject to its approval.72 Town planning and roads seemed ripe for some form of overall metropolitan authority.

The Greater Sydney Bill 1915.

The Greater Sydney Bill presented to parliament in September 1915 by the Holman Labor Ministry therefore contained provisions for the maintenance, construction and regulation of roads, and for the establishment of a Civic Planning Commission. The powers of the Civic Planning Commission included the classification of districts as residential, factory, business, and noxious trades.73 It would prepare 'civic schemes' as well as determine applications for subdivisions, subject to the approval of the new council.74 What was perhaps most interesting was the strong link forged between the question of roads and that of subdivision. The first duty of the Civic Planning Commission would be 'to prepare and lay before the Council an arterial roads scheme for the Metropolitan Area looking at least 50 years ahead.'75 Immediately after the provisions dealing with arterial roads were the provisions dealing with subdivisions. The close connection between the provisions for roads and subdivisions was quite deliberate:

71 Ibid, p.xix.
72 Ibid, p.xxx.
74 Fitzgerald pps, ML, Ms Q264, Draft of Greater Sydney Bill, 5 May 1914, p.66.
75 Fitzgerald pps, ML, Ms Q264, Memo of explanation of Greater Sydney Bill, p.208.

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In Australia we consider that the probabilities are that the greater part of our town planning can be done by, first, fixing the main lines of the traffic arteries, and, second, regulating the opening of new roads and the subdivision of land so as to conform with those lines, and with the advance of knowledge of Town Planning in modern times.\textsuperscript{76}

The powers of the Civic Planning Commission did not stop at roads and subdivisions. It could also bring forward schemes for the development of certain areas, or schemes to reconstruct and remodel others such as the congested districts of the city.\textsuperscript{77} The connection between roads and subdivisions, however, was its most daring feature. The process of suburbanisation, the peculiarly Australian experience of city construction was thus recognised by the legislators. The bill was not a copy of English Town Planning legislation, but a 'new draft adapting to Australian conditions the best features' of English legislation.\textsuperscript{78}

Unfortunately for the planning advocates these features were also connected with the fortunes of Greater Sydney, and the Greater Sydney Bill failed for a variety of reasons.\textsuperscript{79} The suburban municipalities were bitterly opposed to the bill on account of the high-handed way it was being introduced, without the assent of the municipalities. The franchise conditions were also contentious. Within the bill, an attempt was made to extend the principle of 'one man, one vote' to the local electorate. This was a particularly contentious issue that could have been laid aside by the Government to allow the bill to proceed. This the Government were not prepared to do. There was, however, another obstacle to the bill. The bill gave some rather experimental powers to the new council, empowering it to trade in municipal services, including electricity, gas, building materials, postal services and ferries. Little of this had been envisaged in the debates and enquiries leading up the the bill and it was too much to swallow for most members of both the Legislative Assembly and the Legislative Council. The bill was allowed to lapse after its second reading was adjourned.

\textsuperscript{76} Ibid, p.208.
\textsuperscript{77} Ibid, p.11-12.
\textsuperscript{78} Ibid, p.208.
By this time John D. Fitzgerald, the most outspoken and identifiable advocate of Greater Sydney, was vice-president of the Executive Council in the Holman Labor Government. Fitzgerald remained loyal to Holman during the conscription crisis, and refused to campaign against conscription. When Holman formed his Nationalist ministry in November 1916 after Labor split over the question of conscription, Fitzgerald was rewarded with what he must have coveted for many years, the Ministry for Local Government, the first in New South Wales. Fitzgerald had publicly called for the formation of the new department for some time. At a meeting of the National Roads Congress in 1914 he suggested the establishment of a Department of Local Government in order to devote full attention to the problem of local government. He believed that the system of dealing with it in 1914 in the DPW was not enough, as the Minister for Public Works simply did not have the required amount of time to deal with the subject.

With Fitzgerald was John Garlick, who had been Officer-in Charge of the Local Government Branch of the DPW. Garlick became involved in local government after he asked Carruthers to allow him to assist T.A Coghlan to draft a Local Government Bill in 1905. Coghlan left for England shortly afterwards and the responsibility for drafting the Shires Bill was given to Garlick. Other legislation which Garlick was associated with were the Local Government Extension Bill, and the Local Government (Consolidation) Bill. The new sub-department for local government was established in order to carry the latter Act into effect, with Garlick being appointed 'sub-head'. Garlick was later Secretary to the Royal Commission on Greater Sydney and was responsible for suggesting the division of Greater Sydney into two zones, an inner and an outer. When the new department was formed, Garlick was appointed Under-Secretary.

Together the two men were able to forge their ideas, not merely as a continuation of the reform of local government in New South Wales but also as part of a general reconstruction of post war society, on the one hand, and the supply of food, and the health of the populace, on the

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80 He was also made Minister of Public Health and Minister of Justice.
81 Building, July, 1914, p. 38.
82 Building, 15 Aug 1908, p.23.
83 Ibid.
other. Fitzgerald presented his ambitious proposals to the cabinet during the war. The Government would operate, he stated:

...a bold and active constructive and developmental policy, an advanced programme on collectivist lines, and a special policy with regard to cheapening the people's food...84

Fitzgerald outlined twenty one proposals which he thought fitted into his programme of reconstruction. These included full citizen rights for women, the 'scientific development of production by hydro-electric schemes', co-operative land settlement and proportional representation. For the future of Sydney, Fitzgerald proposed a comprehensive policy of decentralisation. He intended linking up the internal lines of communication of the state, developing ports to the north and south of Sydney with railway lines to link them to country areas. Eventually, he hoped the development of the other ports would reduce the congestion he expected would occur shortly in Darling Harbour. He also envisaged the creation of a new department of State to 'organise the inter-related subjects of public health, town planning and the housing of the working classes', the latter of which was a 'special source of the present discontent'.85 Fitzgerald intended dealing with main roads along with the problem of local government, and suggested forming a Main Roads Commission, independent of parliamentary influence. He appears to have had this in mind for country areas, considering that metropolitan roads were ideally treated under a form of Greater Sydney.86 This latter authority was also part of the scheme for reconstruction, and it would bear the responsibility, to be shared with the state, for the construction of the Sydney Harbour Bridge.87

By February 1917 the two men had drawn up the policy of the new Ministry of Local Government. The main points were the introduction of (a) a Local Government Bill, (b) a Greater Sydney Bill, (c) the inauguration of Country Main Roads reconstruction, (d) the introduction of a Town Planning Bill, (e) the Local Government of Hospitals, and (f) the registration of Real Estate Agents. A significant feature of the policy was

84 Fitzgerald pps, ML, Ms Q267. Cabinet Memo, nd.
85 Ibid.
86 Fitzgerald pps, ML, Ms 147, p.8. 'The main roads of the Metropolitan Area have been provided for in the Greater Sydney scheme and that appears to me to be the pr proper way to deal with them'.
87 Ibid.
the distinction made between Sydney and the rest of New South Wales. The Main Roads Bill and the Town Planning Bill were designed to serve country areas, while provisions for town planning and roads in Sydney were encompassed within Greater Sydney. The allure of Greater Sydney had lost none of its sheen for Fitzgerald:

The metropolitan area needs metropolitan arterial roads, needs a reviving control of its water supply, more sympathetic insight in the disposal of its sewerage, unified control of public health inspection and management, one common authority to control land subdivision and the erection of buildings (town planning). In short it needs very much better municipal housekeeping.88

What he proposed to do to achieve this was to abolish the City Council as it stood, and a number of suburban municipal councils, and in their place erect a Metropolitan Council. This council would also have town planning functions, and 'effective housing powers' to relieve the scarcity of houses which became evident before the outbreak of war.89 The town planning functions were to be fairly comprehensive, drawn along the lines of English town planning legislation, though modified to suit Australian 'conditions'. Fitzgerald's Greater Sydney draft never made it to the Assembly, however.90 The volume of work undertaken by him and Garlick appears to have waylaid the plans for Greater Sydney. Their energies were increasingly consumed by the seminal Local Government Bill which finally received the Royal Assent in December 1919, just before elections were called for March 1920, when a Labor government swept to power. It is significant to note, nonetheless, the source of the support for Greater Sydney. When Garlick urged A.A. Cocks to form a deputation in support of a bill, he asked him:

...do you not think it would be advisable for the Automobile Club, and the Chamber of Commerce, and the Millions Club to get together...You might invite the support of the Town Planning Association, the Institute of Architects, the Institute of Surveyors, the Women's Nationalist Association, the Health Society, the Master Carriers, the Sydney Bicycle and Motor Cycle Club, and any other bodies which have a direct interest in the improvement of the metropolitan area, particularly its main roads, and its town planning...91

88 Fitzgerald pps, Ms 147, Local Government Policy, 2 Feb 1917.
89 Ibid.
90 For details of draft legislation see Larcombe, The Advancement of Local Government, pps 195-6.
91 Fitzgerald pps, ML, correspondence, Ms Q258, John Garlick to A.A. Cocks, 7 Aug 1918.
To judge by the groups mentioned by Garlick it would appear that the chief function of Greater Sydney would be precisely for town planning and roads. The consequence of this, of course, is that should these issues be dealt with in some other way, the need for a Greater Sydney would disappear. Fitzgerald did manage to introduce the first such named town planning legislation in New South Wales in 1918\(^2\) which led to the formation of the NSW Town Planning Advisory Board, consisting of Garlick, J.J.C. Bradfield, John Sulman, Arthur Pritchard, President of the NSW Institute of Architects, and Richard Stanton. The authority, however, was purely advisory and its immediate impact upon the urban fabric was probably negligible. The Advisory Board could only advise the Minister or local governments on matters of town planning at their own request, and they were, of course, free to reject its advice. Only the State Housing Board appeared to have taken the Board seriously.\(^3\) The lasting legacy of the Advisory Board was the publication of bulletins on town planning for use by local authorities and architects. The first of the bulletins, published in 1919, was Sulman's 'Town Planning: A Sketch in Outline', based on his lectures at Sydney University.

The Local Government Act 1919.

The most immediate impact of the work of Garlick and Fitzgerald on the layout of Sydney came about as a result of the 1919 *Local Government Act*, for it was in this Act that many of the ideas emerging through the town planning movement could be implemented. The basic intention of the Act was to reform existing local government legislation. The Act would 'perpetuate the existing local government system but will remove many defects revealed by practical working'.\(^4\)

From the point of view of local government, the act is significant in making municipal boundaries somewhat more flexible. County Councils could be formed by compliant municipalities in order to carry out certain common services. According to Larcombe, this was the one important structural change inaugurated by the new legislation.\(^5\) Little enough

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\(^2\) See Sulman pps, ML, Mss 4480, Box 7(8).

\(^3\) Robert Freestone, *Model Communities, the garden city movement in Australia*, Nelson, Melbourne, 1989, p.201.

\(^4\) Fitzgerald pps, op.cit Ms 147.

came of these provisions, however, although Redfern, Alexandria, and Waterloo seriously contemplated forming a 'Southern Suburbs County District'. The *Local Government Act* 1919 is also significant in that it greatly increased the powers of the local councils. Under the 1906 *Local Government Act*, the Governor's approval was required for the exercise of many of the powers of old councils, but with the new legislation, the council did not need to have any recourse to the Governor for their actions.

The increasing powers of local councils and shires, however, had to be balanced against the overriding influence of the new Department of Local Government. The organ for the local authorities, the *Shire and Municipal Record* mourned the lack of real power. It claimed that the powers given to the local authorities were only a shadow of the real powers withheld from them and vested in the Minister.

Under the new bill even the price they are to charge for emptying garbage tins is to be fixed from Sydney...Once upon a time a council used to make its own by-laws. It now accepts all these made for it in Sydney and incapable of amendment unless the central administration consents...

The increasing centralisation of local government was particularly evident in the case of Section 309, which allowed councils to apply to have an area under its jurisdiction to be declared a purely 'residential district'. This way a council could apply to have factories, workshops, warehouses, shops, and places of public amusement prohibited from the area. The idea behind this, according to Garlick was 'to confine the factories and businesses to one part of the town, and to keep them from being indiscriminately mixed with private residences'. The application for such declarations could be vetoed by the Department of Local Government, and this way, the department had a strong influence over the distribution of residential districts. It was one way of fulfilling some of the aspirations of the town planning advocates of laying down zones for the separate activities of residences, industry, recreation and commerce.

The tendency towards centralisation appear to have been the direct opposite to the effect Fitzgerald intended with many of his ideas on local

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96 Ibid.
government reform. Had he not informed the *Royal Commission on Greater Sydney* that Greater Sydney was 'simply increasing the self-governing powers of the citizens'? The removal of powers from the councils and vesting them in the Minister was surely removing powers from the citizens in how they shaped the area they lived in. What must be pointed out is that the *Local Government Act* 1919 was supposed to operate alongside a Greater Sydney (and Greater Newcastle). Therefore the loss of powers to the citizens would have been compensated by the increased powers given to them in the control of the metropolitan area, and the services necessary to maintain it, under a Greater Sydney. Fitzgerald never lost sight of Greater Sydney to the very end. In the 1920 election campaign he once more raised its spectre:

> If the Government obtained a removal of power it was their intention to settle forever the city versus country cry by giving the metropolitan areas of Sydney and Newcastle proper civic government, so that necessary developmental work can be carried on by the great city council's themselves, instead of depending on the exigencies of the state finances.  

**Planning the Metropolis.**

The planning of the metropolis by the Government was never a radical attempt to change the existing structure of the metropolis. The operation of the 1919 bill merely confirmed the status quo, or merely conformed to the prevailing orthodoxy, which was in itself motivated by the question of property values. The ideal of what Sydney should be was replaced by the prediction of what Sydney would be if attitudes to property remained unchanged. As the applications for the declaration of residential districts made their way to the Department of Local Government, it became clear that those areas that had already been recognised as residential would be treated more favourably than areas that had a high industrial or commercial content. Thus the legislation did not attempt to reform the urban structure, but merely gave it a statutory affirmation. In the year following the passing of the *Local Government Act* 1919, the two municipalities which succeeded most in having residential districts declared were Waverley and Woollahra, both of which were already strongly residential in tone. By 1929 Woollahra boasted of twenty

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99 *Royal Commission on Greater Sydney*, 1915 p.5.
100 *SMH*, 2 Mar 1920, p.7.

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three residential zones, while Ku-Ring-Gai emulated this with forty eight such districts. The total number of such districts amounted to one hundred and seventy five by 1929.

The success of the wealthy and salubrious suburbs in having declarations in their favour contrasted with the attempts of the more congested inner suburbs to heighten the residential tone of their areas. From 1923 to 1927 Waterloo had three of its applications turned down on the basis that such declarations might hinder industry:

...the Minister has had cause in some cases, to doubt gravely whether the proposals, if put into force without alteration, might not have a very serious effect on the shipping of the port, and on the welfare of the whole state; while some other proposals might have had the effect of preventing any expansion of existing industries established in certain districts.102

Redfern also found its aspirations to improve the residential character of its area sacrificed to the industrial and commercial well-being of Sydney, and the State. When Redfern applied to have its whole area declared a residential district in 1922, it received a discouraging response from the Department of Local Government. Garlick reminded the council:

Since the City Council's electricity was made available in Redfern there has been a steady growth of new industries in the Municipality, which, by reason of its central situation, and the fact that it lies at the Railway and Tramway Centre of the Metropolitan Area, is pre-eminently adapted for development as an industrial centre.103

In the eyes of the state government, there were some areas which had to carry the burden of the state's industrial development. Here was state planning if ever there was such a process. Once more, as had happened in the case of housing, the state affirmed its interest in the 'city centre', including the inner suburbs. Once more the state affirmed its policy of removing the populace from the city and inner suburbs to the outer suburbs:

It is suggested for the Council's consideration that it will be in the best interest of the people as a whole if the people's homes are gradually removed from the congested areas to the more roomy suburbs within easy reach by rail and tram, and only the minimum housing space reserved in

103 Ibid.
the industrial centres like Redfern to accommodate those whose employment is of such a character that they must reside very close to the centre.\textsuperscript{104}

It is a supreme irony that this legislation which was so strongly associated with Fitzgerald should now be used to justify what he had so strongly opposed for much of his career, the wholesale removal of the working class to the suburbs. Fitzgerald fell from office after the defeat of the Holman Nationalist Ministry in March 1920, and two years later he died. His views on how the legislation operated are therefore a matter of speculation.

A significant departure contained in the \textit{Local Government Act 1919} for the layout of Sydney were the provisions for the regulation of subdivisions, again by the local council. The number of houses per acre could be controlled, as well as the size and shape of allotments, and the making of new roads. Overall, local councils were given powers to implement the most modern ideas on the upkeep of the modern environment. These provisions dealing with the control of building and subdivisions undoubtedly benefited many districts irrespective of their 'residential' standing. It was reported in the \textit{Sydney Morning Herald} that the effect of the building regulations were 'not confined to the wealthy houses but is even more marked in what might be termed artisan suburbs and towns...'.\textsuperscript{105}

As a result, however, the provision of working class dwellings in the more expensive suburbs was probably made increasingly difficult. The President of the Master Builders' Association complained that it was impossible under this legislation to provide houses 'at a figure that had any possible relation to the average worker's resources...'.\textsuperscript{106} The condition that all residential lots had to have a minimum of 2,500 square feet was particularly inconvenient for those who could only afford a small house. The legislation undoubtedly benefited many, but it was designed for the already affluent. Given the high earnings of the working class at the time, this may not have been a bad idea. The long-term effects, however, of a metropolitan structure designed for the affluent, with little or no provision for those on low earnings was a potential source of difficulty.

\textsuperscript{104} Ibid.
\textsuperscript{105} Quoted in Peter Spearritt, \textit{Sydney since the Twenties}, Hale and Iremonger, 1978, p.23.
\textsuperscript{106} Ibid, p.23.
The *Local Government Act* 1919 was a milestone in the construction of Sydney. The control of the metropolis was more than ever removed from the engineers and bureaucrats of the DPW. The Department of Local Government, which began as a branch of the DPW in 1906, was now given considerable power over the planning of Sydney. Just as in the case of the MBWSS, the basic infrastructure having been completed, it was handed over to an offshoot of the DPW for maintenance and control.

It has been noted that the town planning instituted by the *Local Government Act 1919* was really planning for the suburbs rather than for the metropolis as a whole.\(^{107}\) To a large extent this is true, in that the provisions often dealt with residential areas. It should be not be overlooked, however, that the bill provided for the placing of residential areas, as well as their regulation. In this regard metropolitan planning is a feature of the bill. A fully fledged metropolitan plan depended on the success of Greater Sydney, but the opponents of this legislation were too large and numerous for it have been implemented.

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Conclusion.

The Brooklyn Bridge, in New York, one of the earliest large steel bridges in the world, 'belongs first to the eye'. Its scale, design, and situation command the attention of the passer-by. A similar prognosis can be made for the Sydney Harbour Bridge, the height and grandeur of which also commands immediate attention. Despite the erection of other large and imposing structures in New York since the 1880's the Brooklyn Bridge remains one its outstanding monuments, and the Sydney Harbour Bridge, which dwarfed every other structure in Sydney until the advent of skyscrapers in the 1960's, is today one of the most outstanding landmarks of Australia. The construction of the nearby Sydney Opera House in the 1960's, which represented a more mature phase in the use of steel and concrete, enhanced rather than degraded the appearance of the bridge.

These bridges are a reminder of a period and a technology which brought to Sydney the Central Railway Station, the city and suburban railway, high rise buildings, and a massive reconstruction of the port following a huge increase in the size of ships. Like the great bridges, these developments were physically and visibly impressive. Furthermore, they made their mark upon Sydney within a short span of time, and if these structures remain impressive today, one can only surmise what their impact must have been on the inhabitants in the early part of the century. They underline the view of the poet, Ezra Pound, that the city is best understood as a visible object:

The life of the village is narrative. In a city the visual impressions succeed each other, overlap, overcross, they are cinematographic.2

The age which had produced 'moving pictures' had produced a city which was itself a 'moving picture', an artifice, a distortion, a visible object. The modern city was a product of the new technology, and like technology it was open to change and reconstruction.

The transmission of the new technology to Sydney was determined by a complex process of time and space in interaction with demography,

1 Alan Trachtenberg, Brooklyn Bridge, fact and symbol, Oxford University Press, 1965, p. 3.
technology, economy, and the political weal. The rearrangement of jurisdictions in Sydney 1900-20 between the Government, the DPW, the Sydney Corporation, and commercial interests, was a consequence of shifts in the major determining factors during this period. Ultimately the urban dynamic, which was the interaction of these determinants, was brought to order by the Government as it was compelled to do as Sydney increased in size and importance. It has been recently claimed that if the State Government did not control Sydney, there was not much left for it to control.3 When applied to Sydney 1900-20, this statement is perhaps a solecism, but the trend towards the accumulation of resources in Sydney was notable by the turn of the century, and is likely to have contributed to the increasing intervention of the Government in the affairs of the city and its suburbs.

A feature of the major determinants of the physical structure of the city was their expansionism. Infrastructure developments were as much a determinant of urban growth as a response to it. The possible demand for facilities was consistently overestimated, suggesting that the desire to create facilities was greater than the actual need for them. It has been noted that the Western Sewerage System which was built in the 1890's went 'largely ahead of anticipated major urban population settlement'4. Tramlines and railway lines ran out to areas that were sparsely populated. Street widenings were carried out to boost traffic, which in turn was drawn by the ever increasing scale of the commercial operations of the city. A consequence of the pre-emptive development was the settlement of areas without adequate facilities, notably the North Shore. The latter was settled in anticipation of facilities, especially the North Shore Bridge, rather than the existence of facilities. Sydney was transformed because of expectations, and the willingness of the Government to fulfill them. Once the costs of facilities could be supported the Government provided them.

The transmitters of the new technology included the leading engineers employed in Sydney, for the most part by the DPW, keen to have the opportunity to make full use of it. In addition, various governments wished to capitalise on the availability of large sums of money from British sources to make way for the future economic development of the State, as well as provide employment for large numbers of men.

4 Coward, Out of Sight, p. 128.
Furthermore, the Sydney Corporation sought to gain from what underlay nearly all infrastructure developments, an increase in property values. It has been pointed that one of the earliest advocates of the Brooklyn Bridge, New York, justified its expense on the grounds that a bridge across the East River 'would be the means of raising the value of the lands on the east side of the river'. A similar argument was made for much of the public works in Sydney.

Business and commercial enterprises also determined the shape of the city and suburbs. Many companies installed electric lighting in their premises in the 1890's but it was not until the more reliable municipal electricity supply began in 1904 that new buildings began to surge upwards. Few buildings were higher than 100 feet in 1900, but by 1912, there were plans to erect offices 240 feet and more. All over the city businesses awaited the opportunity to demolish or leave their wood or brick premises, usually 50 feet high, for new buildings of 100 feet or more. They were encouraged to replace their old buildings by the Sydney Corporation which embarked upon a campaign of 'improvements' to provide more space for commercial development and to ease the flow of traffic into the city. The transformation of the city added to the pressure upon residential life in the city, forcing the inhabitants to look further afield for accommodation. The migration of the working class to the suburbs, however, was not merely the result of commercial activity, but the consequence of an already established orthodoxy which grafted the ideal of the suburban lifestyle upon nearly everyone. The subsequent deference to suburban aspirations and to commercial progress provided the key to the transformation of the city, and indeed, the public transport system which connected the city with the suburbs.

The pre-emptive nature of development rested upon a buoyant confidence in the future of Sydney. E.W. O'Sullivan was one of the more outspoken adherents of the view that Sydney was bound to play a leading role in human history. In 1904, intoxicated by his experience with the DPW, he reminded the citizens of Sydney:

More than half of mankind will some day be ruled from this city, and we ought, therefore, to build it in an artistic and majestic manner. In less than a century from now, the great events of humanity will be solved upon the oceans that lave our shores. It is not, as in the past, upon the

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6 *NSWPD*, Frederick Flowers, Legislative Council, 5 Nov 1912, p.2644.
Mediterranean and Atlantic, that the great naval battles will be fought, but upon the Indian and Pacific Oceans, where the greatest interests of competing nations to-day lie. Sydney will then become the armoury of the Southern world, and the base for all the great naval and military operations that will decide the fate of more than half the human race.7

The Central Railway Station was among the most significant contributions of O'Sullivan to a majestic building style in Sydney, but it was not his only scheme. In 1900 he commissioned the design for a statue to be called "Australia Facing The Dawn", fully 230 feet high to be placed on Pinchgut Island in the harbour. The statue bore a remarkable resemblance to the Statue of Liberty which stood in New York Harbour. It was intended to have the statue holding 'aloft a halo of stars, one for each Federal State.'8 O'Sullivan hoped that when erected it would be encircled with 'smaller statues of the explorers and navigators who discovered or opened up Australia.'9 It was never built; it did not have the same urgency as the Central Railway Station, or the Sydney Harbour Bridge, and wiser heads prevailed, but it is a reminder of how potent was the desire to construct a majestic city in the early part of the century. Sydney lay well behind New York in population, wealth, and prestige, but this did not deter O'Sullivan from attempting to emulate it.

O'Sullivan was not alone in attempting to follow in the footsteps of New York for the belief that Sydney was a close relative to that city was widely held. Like the City of Sydney, Manhattan was situated on a narrow peninsula, forcing buildings upwards, and it was perhaps due to the similar effects of commercial enterprise upon the city that Allen Taylor called Sydney 'the New York of Australia'. Both cities were also similar in that they viewed themselves as the true centres of power and prestige although both had been overlooked when the sites of the respective Federal Capitals were decided upon. Sydney was snubbed in favour of Melbourne and Canberra, while New York was overlooked in favour of Philadelphia and then Washington. Despite the snubbing, General DeWitt

8 Daily Telegraph, 9 January 1901, p.5.
9 Ibid.
“AUSTRALIA FACING THE DAWN”

DESIGN FOR THE PROPOSED COLOSSAL STATUE.

The Daily Telegraph, 9 January 1901
Clinton, one of New York's leading citizens, prophesied in 1817 that New York would someday become:

The Granary of the Western World, the Emporium of Commerce, the Seat of Manufacture, the focus of great moneyed operations, and the concentrating point of vast, disposable, and accumulating capital which will stimulate, enliven, extend, reward the exertions of human labour and ingenuity.\textsuperscript{10}

The pursuit of greatness was evident also in the New South Wales Legislative Assembly. When the reconstruction of Sydney Harbour was being debated in that Assembly it was pointed out that:

Although this city of ours is not going to be the federal capital, we believe it is going to be the real capital of all human life in the southern hemisphere, and I believe the Prime Minister would do well, and would deserve well of the present day, and all posterity if he could carry out the magnificent design of which this is the beginning.\textsuperscript{11}

For all the comparisons made with New York, there was also a general unease with the New York example, culminating with the \textit{Height of Building Act} 1912. Although the questions of fire and appearance dominated debate on the Act, a resistance to the example of New York was evident. Holman railed against the corruption and the overcrowding of New York, and eulogised what he considered to be the more civilised development of the European city:

I hope and believe that the future of this city is to develop in orderly beauty and comfort, as the great cities of Europe have done. I believe its destiny is to follow in the footsteps of the great monuments of civic progress in the old world, and that Sydney's fortune is to be another Vienna, another Berlin, another Glasgow, another Edinburgh, and not to be an atrocity amongst cities such as New York has undoubtedly become.\textsuperscript{12}

The division of opinion over the identity and destiny of Sydney was reflected by changes occurring within the engineering profession. By 1900 engineers in New South Wales, and indeed of the whole of Australia were still mainly of British and Irish origins. Many of them were trained in the great railway and industrial undertakings of Scotland and the North of England, including Thomas Johnson and Joseph Davis. Another feature of the profession was the high proportion of Anglo-Irish

\textsuperscript{10} General De Witt Clinton, 1824, in Thomas Bender, \textit{New York Intellect} p.56.
\textsuperscript{11} Quinn(Sydney-Bligh), 5 July 1900, \textit{NSWPD}.
\textsuperscript{12} W.A. Holman, 14 Nov 1912, \textit{NSWPD}, vol xlix, 1912, p. 3299.
Provenance, of which Robert Hickson, Henry Deane Walsh, and E.M. DeBurgh were among the most prominent. In addition to this group must be added those that were trained in Ireland, including Henry Deane and Professor William Warren. Collectively, the English, Scottish and Anglo-Irish origins of the New South Wales engineering profession underline its colonial origins, and that it was part of a process which imbedded the advances of the modern world upon an ancient land. Indeed in 1892 engineers in Australia were exhorted to view their work not merely as practical aids to the exploitation of the colony, but as monuments to their race and culture. A Victorian engineer, C. Napier Bell reminded his fellows:

That wealth and greatness are measured by their engineering works, and if they would entertain the honourable ambition, once more popular that now, of being remembered to the distant ages of the future, let them emulate those mighty peoples of the past who left imperishable records of their lives in the ruins of their vast public.  

The proponderence of British engineers became increasingly challenged in the first two decades of the century as the products of Australian universities attained positions of influence. Their aggrandisement culminated in the formation of the Australian Institute of Engineers in Australia which 'marked a decisive break with British experience, and indicated the arrival of Australian engineering at independent maturity.' Major Australian engineers include J.J.C. Bradfield, and James Fraser. Significantly, the maturity of Australian engineering was marked by a shift from British principles to American engineering practices. Britain could no longer be regarded as the pinnacle of engineering achievement, and America seemed to be responding to challenges that appeared more relevant to Australian needs. Professor William Warren asserted that by the twentieth century his courses in engineering in Sydney University were modelled more on American practices than on British practices.  

The shifts occurring in the engineering profession display the difficulty that lay before those who were captivated by the glory of the great

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13 C. Napier Bell, *Australian Association for the Advancement of Science*, 1892, vol 4, p.199.
European cities. The dynamics of Sydney were entirely different to the European cities, a fact recognised by the Royal Commission for Improvement 1909. Although it adopted some of the more grandiose schemes of its witnesses, it turned its face against the ambitious and monumental reconstructions of the European cities. Sydney was never to have its Haussmann, or its Wren, much to the disappointment of John Sulman who wanted to fulfill such a role. The Government, however, desperately needed to bring some order to its development. The Local Government Act 1919 was the first attempt to do this, by integrating English style order with Australian style expansion. Sydney had not yet matured, but the Government at least ensured a proportion of space for various activities necessary for the survival of the metropolis and the State through the operation of the Act.

The Local Government Act did not bring the Government full control of Sydney, but it is unlikely if it desired such control. The Government was content with the legislation which affirmed its authority over the major components of the urban fabric rather than having them regulated. Indeed the Government itself took its place among the components, acted upon them, and was acted upon by them. Such interaction often brought it into conflict with the components, including the Sydney Corporation, but more often than not, urban development occurred as a result of a resolution of different interests under common ideological assumptions. These assumptions often rested upon common expectations of wealth and services which the Government both fostered and acceded to.

The emphasis upon the physical structure of the city brings into relief the multi-faceted nature of the city. It is not only a political, economic, or social structure, but it is also a physical structure, an outcome of technology. A history of the modern city requires a juxtaposition of its physical structure as well as its political, social, and economic structure. The city is complex, and is perhaps beyond full description, a point that had been discovered by the 'Modernist' writers, including Joyce, Baudelaire, and Eliot, all of whom:

...proclaimed the end of unity, making aesthetic play with the multiplicity of fragments thrown up by metropolitan life...\(^\text{16}\)

\(^{16}\) Bender, \textit{op cit}, p. 497.
It is to the lasting credit of the Royal Commission for Improvement 1909 that it refused to 'order' the modern city. When Sandercock described the findings of the Royal Commission as an 'odd amalgam of values and conflicting approaches to city improvement'\textsuperscript{17}, this interpretation, in fact, revealed the full measure of the difficulty in imposing order during this period. The Improvement of Sydney must be seen as part of a process of response and reaction to the impact of new technology. The technology made its effect upon the city through a number of quite legitimate agencies, sometimes at odds with one another, but more often than not, deferential to each other. The effect these improvements had upon the city and its suburbs was enormous, but they were also strangely integrated. The determination of the city did not emanate from one source but several sources, the outcome being the interaction of all of them.

\textsuperscript{17} Sandercock, \textit{Cities for Sale}, p. 20.
Appendix

Designs submitted to the Sydney Harbour Bridge Advisory Board 1902-3.
SYDNEY HARBOUR BRIDGE.
Appendix J.—Sketches of Designs submitted, 30th June, 1902.

CLEVELAND BRIDGE C2
Scale 200 ft. to in

CROSS SECTION OF DECK
Scale 20 ft. to 1 in

CROSS SECTION AT TOWER
THE CLEVELAND BRIDGE CO
AMENDED DESIGNS SUBMITTED 16.3.03

SYDNEY HARBOUR BRIDGE.
Appendix K.—Sketches of Designs received, 16th March, 1903.

Fig 2

Fig 3

Fig 1

Scale 100 feet to 1 in.

Chairman of Advisory Board
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