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Kim Cooper.
Tuesday 1-3p.m.

Australian History.

Research Paper.

Electricity in the Hunter.

25th August, 1989.

The streets of Newcastle were first illuminated by electricit in 1890, with strong opposition from the Newcastle Gas and Coke Company. Supply was gradually extended to the suburbs. The boundaries of distribution were Raymond terrace, East Mitland, Swansea and Morisset by 1931. Mr Guy Allbut was Chief Electrical Engineer and Manager for 39 years. His guiding hand was behind the steadydevelopment and growth more than any other individual. The Electricity Commission was founded in 1950 to oversee the State's power generation, while the Councils continued the distribution of power. The Shortland County Council was formed to oversee a larger area of distribution in 1957. 1980 saw two other councils amalgamated with Shortland.

Tamworth was the first town in New South Wales to install electric street lighting in 1888. Newcastle Borough and Lambton Municipal Councils moved to investigate electric lighting of the city in May 1889. Newcastle Gas and Coke Company was strongly opposed to this as they were the sole supplier of light and heat to the city. However the streets of Lambton first became illuminated by electricity on 9th September, 1890. This enterprise only survived a number of years, becoming uneconomic as the people of the area were not willing to take the electricity supply into their homes. Newcastle Council's supply was switched on for the first time on 31st December, 1890. [1] A special Act of Parliament was secured in 1892, to make it lawful for the council to supply electricity within and outside the limits of the Borough. The concern was not financial until after 1911, when substantial growth was starting to be recorded.[2]

By 1912 the Council found they had a small and inefficient generating plant, and also an inadequate system of overhead mains. However during this year reorganisation work was carried out. The year 1916 found supply extended to Carrington and portions of Wickham, Hamilton, Adamstown and Merewether. Supply to Stockton was not available until 1925. The opening of the B. H. P. Steelworks and other industry in the Newcastle area brought about an increased population, who also required electricity. The end of 1931 saw the Council extending supply to Raymond Terrace in the north, East Maitland to the west, Swansea and Morisset in the south. They had completed a period of twenty years without an increase in electricity tariffs - in fact charges had been reduced.[3] The rapid expansion of supply saw the Council with many small offices scattered around Newcastle. This was inefficient and time wasting. Mr. Allbut planned the building of Nesca House which would bring all the administration areas together under the one roof. Nesca House

1. The Shortland County Council.
2. Guy Allbut: A Brief History of Public Electricity Supply in Australia. Melbourne 1958. p.28
3. Shortland County Council 10th Anniversary.

was offically opened on 8th September, 1939. Nesca is an acronym from Newcastle Electric Supply Council Administration.

Newcastle Council appointed Mr. Guy Allbut of Tamworth during July, 1911, as Chief Engineer and later Chief Electrical Enginee and Manager, "and he, more than any other individual, was the guiding hand behind the growth and steady development of Nesca until his retirement in 1950." [4] Although he made great demands on his staff, he always had their loyalty. Mr. Allbut also argued the greater economy of operating large power stations rather than small ones. A greater cost to consumers resulted from Newcastle's smaller system.[5] The Minister for Works, Mr. Cahill in 1945 wanted more electricity supply expansion into the rural areas. He suggested the Council strike a loan rate for the capital expansion. When Mr. Allbut claimed the Council had never struck a loan rate in thirty-five years. Mr. Cahill claimed that they were quite behind a lot of other councils who had.[6] In the period of Mr. Allbut's employment the number of employees rose from about twenty to four hundred and seventy.

The coal strikes of 1949 caused severe rationing of electricity, and at the same time the State Government moved to bring all electricity generation plants in the State under the control of a commission. Nesca produced one and half percent of its requirements the rest was purchased elsewhere.[7] Local Government felt that the commission was to try and bring them into disrepute, and how control could eliminate blackouts in face of machinery and coal shortages was difficult to see. [8] In 1950 the Electricity Commission of New South Wales was established. It was to acquire and operate the generating plants and weld them into one system capable of supplying the bulk needs of the State.[9] Our Local Council was to retain its present authority in regard to distribution of electricity. Large capital works

4.John Armstrong Shaping the Hunter. Newcastle 1983. p.138
5.Ibid. p.139
6.Newcastle Morning Herald 14th November, 1949.
7.Ibid. 21st December, 1949.
8.Ibid. 28th September, 1949.
9.Allbut A Brief p.33

projects were also required to bring the Council's distribution system up to date after the war years when shortages of machinery were prevalent. This capital expansion took place between 1949 and the early 60's. During this time the idea of having a County Council to oversee a large area of distribution was put forward.

The idea of a County Council was opposed by Newcastle City Council. As the largest consumer they would meet the major share of the costs, but would not get corresponding representation on the Council. The other areas were in favour of the proposals with increased benefits to them. [10] On the 12th July, 1957 The Shortland County Council was constituted and the date of delegation of powers was 1st September, 1957. The first meeting was held in a atmosphere of bitterness and tension. Mr. Campbell was appointed Chief Electrical Engineer and the position of County Clerk was to be called for.[11] There was a great deal of debate over the appoinment of a County Clerk. Most delegates wanted a manager.Newcastle Civic and business leaders thought the Electrical Engineer should be the manager, and that a County Clerk was a unnecessary imposition on rate payers. The Government insisted on a County Clerk with a Local Government Clerk's Certificate. Minister for Local Government pointed out that the State Government was standardising County Councils and the Electrical Engineer had a full time job as did the Accountant.[12] Mr. H.B. Moyle was finally appointed County Clerk in October, 1957 and commenced employment in November, 1957. In 1959 the County Council proposed to supply all the farmers who required power by 1962 with a major rural extension programme costing £400,000.[13]

In 1977 the New South Wales Electricity Authority proposed to amalgamate eighteen electricity supply Councils. January, 1980 saw the Shortland County Council amalgamated with Hunter Valley and Upper Hunter County Councils. By March, 1985 Nesca House was

10. Newcastle Morning 11th January, 1957.
11. Ibid. 20th August, 1957.
12. Ibid. 25th September, 1957.
13. Ibid. 8th June, 1959.

nearing its end of usefulness as a administrative centre. The new administrative headquarters of Shortland Electricity at Wallsend was opened by Premier Unsworth in October, 1987. While not ruling out the possible use of reserve funds to subsidise Country Electricity Authorities, he praised the Council for having completed the development without borrowing,[14]

The late 80's saw the State Government move away from the position of County Clerk and back to that of General Manager. The General Manager can be of any professional discipline and the contract of employment is for a set period. The State's generating capacity is in somewhat of a financial crisis as it is over capitalised and cannot generate sufficient income to service the debt. There is many proposals being put forward, one of which is to relinquish to the distribution industry some of the commission assets. We may yet see the distribution industry get even bigger. Shortland Electricity today has over 200,000 consumers, generating a annual sales turnover of over quarter of a billion dollars.

14. Ibid. October, 1987.

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Interview of Mr. John A. Tubb.

Interviewer: What occupation were you in and how did you start at Shortland County Council?

Mr. Tubb. I commenced in the Newcastle City Council Electric Supply branch, April 11th 1934. I started as an Apprentice Electrical Mechanic. Electrical Mechanics were a separate identity in the organisation to the Apprentice Electrical Fitters. All friends but both going in different directions, in different types of work. I completed my apprentice ship as an Electrical Mechanic on shift in 1939. I remained as a journeyman for one year. I went into the services for five years and four months and returned to Nesca scene wondering what positin I would be going back to. Possibly back to a mechanic on shift, on return, I was immediately appointed as foreman in charge of the Customer Service workshop, an elevation I never anticipated. I filled that position for two years. A vacancy occurred in the other line of the organisation in 1947. The Engineer in charge of the Electrical Construction section was leaving, I asked if I could be considered for that position and I was told to start on the following Monday. As I had previously said that was an entirely different branch of the organisation, of which I knew very little. Mr. Vic Jarvis was the foreman in charge and for the first two months he virtually ran the section and instructed me on the things that had to be done. The man was wonderful. After that I started to get the grip of the job and it was not long before I was able to carry out my correct job, duties as leader of the Electrical Construction Section. At the time, the section, the organisation was badly run down, which is no reflection on anyone else, it was just that they had to manage with what was avaiable during the war years The city was controlled by three Substations,

Brown St, Morgan St, and the Sun building. All in pretty poor state. The system was 11,000 415 which was no longer adequate for the expansion of the Newcastle district and hadn't been adequate for some time. It was decided that the major distribution voltage would be 33,000 volts. We proceeded to build substations, major zone substations to handle the large quantities of power from about 1949 and we proceeded to build zone substations in various capacities from 5MVA to 30MVA right up at the rate of approximately two per annum until about the middle 60's. When we where virtually on top of the immediate problem and we could slow down our rate of construction.

Interviewer: Are those zone substations basically still there?

Mr.Tubb: Still there.

Interviewer: They are the most of what is now in the area?

Mr. Tubb: There have been a number built since then, but not a lot. In 1964 position of Distribution Superintendent (was becoming) was vacant, with the retirement of Mr. Harry Tudor 63 I'll call it 64. Applications was called for the position. I applied and to my astonishment I was appointed. Once again I was familar with the position, not familar in detail, but I hadthe assistance of another wonderful man Mr. William Heath, who helped me through the early stages until I had the full grip of the situation. Actually the distribution system was run down for all sorts of reasons. Though we had the zone substations we did not have sufficient feeder (transmission line) capacity to supply these substations with reliable and alternate supplies. A campaign to reinforce the system with duplicate feeders was started. The initial feeder being Waratah to Wallsend. Work of this nature was pushed at the time. The other organisations within New South Wales and within the

whole Commonwealth was swinging over to aluminium conductors for a very good reason - economies. Point one copper at the time was $1200 a mile, where as point one aluminium, point one equivalent aluminium was $376 a mile. We introduced aluminium after a long debate and it rapidly was accepted by all parties. Because of its cost, its cheapness it was agreed we would not use any of the smaller conductors like point 044, point 06, point 064, point 080 and 103,7/16, 7/14 and 7/12 could be ruled out and we could introduce common point one equivalent aluminium. This made a big improvement in system losses. Thousands of miles were installed in those early days. We experimented with aluminium as others were using and because we are close to the ocean we decided that we would use condustors with the inner cores greased so that there was no action with the salt, if it got to the inner core of the cables. The increased use of aluminium, the increase use of the bigger section conductors started to show its benefits within a couple of years as the system losses decreased, winter voltage testing could be eliminated because of the, inner conductor was straight to the connection points. All in all the system was slowly being reinforced. Areas that were serviced by single feeders, such as, Nelson Bay, Buladelah, Gloucester Dungog, Cooranbong had second feeders installed and the reliability of supply was increased considerably. All new feeders were put in with equivalent section aluminium point two of an inch which gave scope for many years to come. Additional feeders were installed, the low tension system was reinforced and by early 70's the system was in reasonably strong position. What with the solid basis of zone substations and a solid feeder system installed.

Interviewer: The city network it goes

Mr. Tubb: Going back in time I must mention the work done

by Mr. Jack Howard on planning the city network. This was a cheaper form of supplying power to the city. City network substations were interconnected with one transformer per substation per feeder and there were three feeders, Additional substations were built in the city, such as, Wolfe ST., Bolton St., and many others , which took the pressure off the old substations like Morgan St., which were eventually replaced and the old substations demolished. The equipment from Morgan St. was sold for a small price to Goninans who immediately reticulated their complex at 11KV something that they had needed for many years, City network was supplied by underground mains. Here again with an eye to the future the cable system instead of being point two conductor which was adequate it was never installed at least than point three it also brought about the introduction of more sophisticated protection system, the pilot protection system which controlled the separate city network feeders and substations there on. As the load of the area became more dense, it was necessary to establish network substations in the city, and in Newcastle north on the 33KVA system. This called for the laying of 33 KV oil filled cables from Merewether West to the city and to city North This was done in 1964. Oil filled cable was something new to the area, the reason they were chosen was because there rating was much higher than conventional cables. Power to Swansea in 1964 was supplied by two small cables, one of which was totally inadequate and the other was pressed to its limit. We decided to install another cable across the Swansea Channel, but at this time preparing for the future, one 33Kv capacity. It was operated in the first instance at 11KV as the load in Swansea grew, approximately 1978 a zone substation was built in Swansea, a second 33KV cable was installed across Swansea Channel, and Swansea went over to the conventional zone substation system with a great improvement in voltage in the system all round in the area south of

Swansea Channel.

Interviewer: You took over Dungog and Gloucester as

Mr. Tubb: In approximately 1956. In 1945 Mr. Guy Allbut organised the supply of electricity to the Upper Williams Valley. It progressed slowly through various valleys around Dungog up into areas like Dingadee, Bendolba, Tillegra and finally to Salisbury. The supply terminated at the Guest Hous This surrounded a small pocket known as the Dungog Electric Supply, and in approximately 1955 this area was taken over by the Shortland County Counci It supplied with power from Masonite. In 1956 The Shortland County Council took over the Gloucester area and supply from Stroud Road, which included supply to Buladelah and Tea Gardens. Thes areas were supplied at 11KV on very old and inadequate feeders. As zone substations were built at Stroud Road with 33 supply and 33 feeders were taken to Buladelah and Gloucester and improved the supply considerably. Those areas were supplied on single feeders and were consequently liable to long blackouts in the winter if there was trouble on these feeders. Zone substations were built at Buladelah, Tea Gardens, but to improve supply in approximately 1970 second feeders were built to Bulahelah and Gloucester making supply much more reliable.

Interviewer: Under the amalgamation of Shortland with Hunter Valley and Upper Hunter Valley

Mr. Tubb: In January 1980 we were called to Sydney to be advised by Mr. Pat Hills the three councils, Shortland, Upper Hunter and Hunter Valley County Councils were to be amalgamated. The immediate problems were to bring the three councils together under a common award, engineering matters were held in obeyance because the system in each area

was working satisfactorally in some cases it might have been old and run down, but it was working, the more important tasks were the awards. After the award, the common award had been established, matters of engineering were taken into consideration. At the end of 1980 the Electricity Commission approached the Shortland County Council asking them to take over the onerous task of supplying power to the mines that were proposed for the Hunter Valley. Normally these organisations would have been fed directly from commission substations, we agreed. With taking over the supply to the mines we were able to forsee an ability to improve the supply position especially in the Muswellbrook area, and as a consequence from the new Electricity Commission substation at Maison Dieu (House of God). Supply was taken at 132KV volts to Mitchell Line . Mitchell Line a most modern substation was built with outlets at 66KV. 66,000 volts was taken on new feeders to Denman, where the substation was reconstructed making the supply in the Denman area most reliable and at the same time voltage was stepped down from 66to 33 to supplythe Merriwa area, this was something to be completed in the distant future and it was agreed that all work done in this area was to be done at 66KV construction, but operated at 33KV. Merriwa is yet to be reconstructed.

Interviewer: When did you actually retire from the council Mr. Tubb?

Mr. Tubb: On 9th December 1982, when I reached the age of statutory retirement 65

Interviewer: Thank you Mr. Tubb. This interview was conducted at the home of Mr. Tubb on 9th August, 1989 by Kim Cooper.

Kim Cooper

Interview Mr John A. Tubb.

Summary.

Mr John Tubb commenced employment with Newcastle City Council Electric Supply Branch on 11th April, 1934. He started as an Apprentice Electrical Mechanic. At that time the Electrical Mechanics Section was run completely separate from the Electrical Fitters Section. Mr Tubb completed his apprenticeship in 1939 and one year later entered the services for five years. On return he was promoted to Foreman in charge of the Customer Service Workshop for two years.

In 1947 he was appointed to Engineer in charge of the Electrical Construction Section. This section of the organisation was badly run down, as they had had to manage with what was available during the war years. The City was controlled by three substations Brown St., Morgan St., and the Sun Building. Also 11,000 volts was no longer adequate for the city. It was decided the major distribution voltage would be 33,000 volts and from 1949 to the early 60's zone substations were built at approximately two per annum. Mr Tubb was appointed as Distribution Superintendent in 1964. The Distribution system was also run down, while the zone substations were now adequate, transmission line capacity to supply those substations was not reliable and no alternate supplies were available. A campaign to reinforce the system was started. Other areas of Australia were swinging over to aluminium conductors because of the cost compared to copper. Aluminium conductors also improved system losses significantly. Areas that were serviced by single feeders had second feeders installed and by the early 70's the system was reasonably strong.

City networking which was originally planned by Mr. Jack Howard was a cheaper form of supplying power to the city. As additional substations were built in the city it took the pressure off the old substations like Morgan St., These were eventually replaced and then demolished. As the load of the city area became more dense, it was necessary to establish substations in the city and city north on the 33KVA system. This involved the laying of oil filled cables from Merewether West to the city and city north.

In 1945 Mr Guy Allbut orgenised supply to the Upper Williams River Valley. This surrounded a small pocket known as the Dungog Electric Supply. Shortland County Council took over

the supply of Dungog in approximately 1955. The Gloucester area was taken over in 1956, along with Buladelah and Tea Gardens areas. These areas all had single feeders and were liable to long blackouts in winter if any trouble occured. They were reinforced by second feeders around 1970.

In January 1980 Shortland, Hunter Valley and Upper Hunter County Councils were amalgamated. In some cases the system was old and run down but working adequately. However all Councils were under different awards and these had to be standardised before working on the distribution system. At the end of 1980 the Electricity Commission approached the Council asking them to take over supplying the mines proposed for the Hunter Valley. This was agreed to ,as they were able to forsee the ability to improve the supply position especially in the Muswellbrook area.