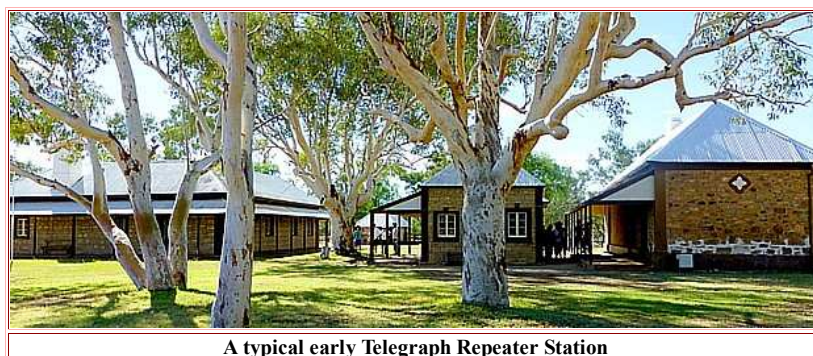


The Early Australian South to North Telegraph Line

By Lloyd Butler VK5BR

The Telegraph line across Australia was activated in 1872. It led from the exploring across the outback by the Burke and Wills party and the Stuart party. The pressure to build the line came from Engineer and Scientist Charles Todd who supervised its installation as Engineer for Telegraphy. The new line was the trigger which opened up the Northern Territory and the north of South Australia. The development was deterred by a few difficulties on the way, the worst of which were the bombing of Darwin by the Japanese. Some detail of the attack is included in an annex at the end of the article. This is detail which never got to the media in the wartime era.

First published in OTN September 2020
(The journal of the Radio Amateurs Old Timers Club of Australia)



A typical early Telegraph Repeater Station

The Era of Survey

Leading up to the early construction of the south to north telegraph line, there a number of important events which led to that construction. First of all, it is of interest that half of the line was in the Northern Territory (NT) which was annexed to South Australia (SA) in 1863. It remained that way until 1911 when the Territory became a part of Australian Capital Territory with Canberra the country's Capitol City.

There was clearly competition between SA and the Eastern States (particularly Victoria) to find a potential trail between the Australian South and its northern coast. This led to the epic exploration by Robert O'Hara Burke and second in command William Wills from Melbourne, And also to the epic exploration by John McDougal Stuart from Adelaide. Burke and Wills explored for a trail, right of the SA, Queensland and NT borders, whilst Stuart explored for a trail right through the centres of the SA and NT.

The Burke and Wills party left Melbourne in August 1860. They actually reached the Gulf of Carpentaria and turned back to a base camp at Coopers Creek. But their efforts were thwarted by the heat of the tropics, lack of food and the missed interconnection with the rest of their party.. They eventually met the fate of not surviving as did a number of others in the party..

Stuart and his party had two attempts to reach the north coast. His first attempt commenced from Adelaide in March 1860. He became very close to reaching his goal but the tropical elements had created such a toll on his health that he decided to turn back. His second attempt commenced in November of that year and he reached the coast in July 1862. He returned to Adelaide in July 1863 in very poor health. He returned to England, still in poor health, and eventually died there in 1866.

But Stuart had done his job. His information recorded about the route was detailed whereas the information recovered from Burkes hidden records was somewhat limited in information detailed.



The Explorer Routes for inland Australia

But on to the scene was (Sir) Charles Todd, a brilliant engineer and scientist who arrived in Adelaide on 5 November 1855. He was originally in charge of the State's Telegraph Department when at that stage there were no telegraphs. But he soon changed that situation.

As early as 1857 Todd conceived the idea of the transcontinental telegraph line from Adelaide to Darwin. But most of the country in between, except for the explorations of Charles Sturt and others, was unknown, And it was many years before Todd could convince the South Australian government that the scheme was practical.

In 1865, Todd established a telegraph line from Adelaide to Port Augusta. So from that point on, his envisaged project was a line from Pt. Augusta to Darwin

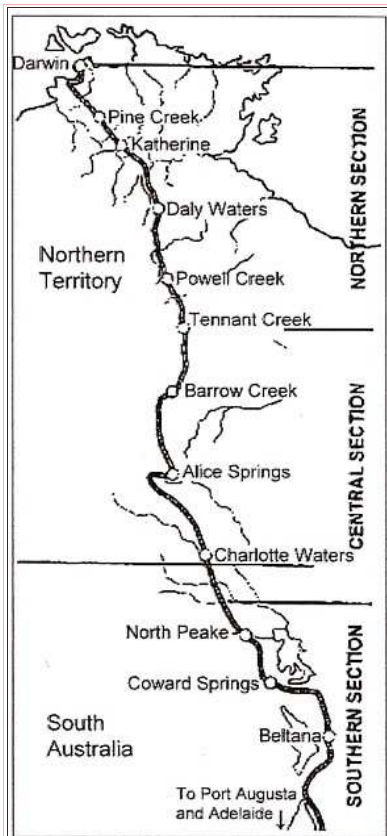
In 1870 the Post Office and the Telegraph Department were amalgamated, and Charles Todd was appointed Postmaster General.

But in 1870, the South Australian government, with the help and influence of Charles Todd, agreed to build a 3200 kilometre overland telegraph line connecting Darwin with Port Augusta. This was on condition that the British-Australian Telegraph Company would lay a submarine cable from Java to Darwin. When completed in a proposed 1872, Australia would be able to speak with the rest of the world.

The British-Australian Telegraph Company was the result of a merger in 1873 of three different telegraph companies, connected with Australia, Britain, and Hong Kong. In 1870, a cable was laid from Singapore to Batavia, (Jakarta), west of Java. In the following year, another cable nearly 2000 metres long, was laid between Banjowangle, (east of Java) and Darwin Australia. In Singapore, telegraph was picked up via a Red Line (British) circuit via Madras and Bombay, on its way to London



Undersea Cables in the area of Indonesia
 The cables within Indonesia can be tracked from the map.
 Cable routes followed a mixture of undersea and on land



A simplified version of a 1933 map showing the locations of the Overland Telegraph repeater

Repeater Locations

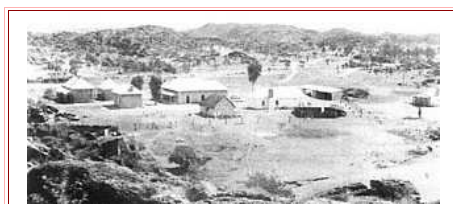
In constructing the line, Todd divided the route for the line into three parts: the southern section from Port Augusta to Oodnadatta, a central section on to Roper River, and the northern section from there to Darwin. The northern and southern sections were to be built by private contractors, whilst the South Australian government would be responsible for the remote 1000-kilometre central section.

In July 1870 Todd appointed John Ross to lead the exploration party that would survey the route. John Ross was, a Scottish born bushman in his fifties. He would link waterholes and areas with sufficient supplies of timber for the telegraph poles (Later substituted by steel poles because of termite attack on the timber). Ross would generally follow Stuart's trail, which was itself a traditional trade route created and travelled by Aboriginal people for millennia. Ross had to mark out the trail which the line would follow. There had to be enough water and timber and they would avoid mountains.

And so the construction of the telegraph line proceeded The line featured 36,000 telegraph poles and 11 repeater stations between Pt. Augusta and Darwin (necessary to boost the strength of the electrical signal). The repeater stations were built at about 250 kilometre intervals at Beltana, Coward Springs, North Peake, Charlotte Waters, Alice Springs, Barrow Creek, Tennant Creek, Powell Creek, Daly Waters, the Katherine River and Pine Creek. Each station was provided with a station master and up to four linesmen. And of course, put into operation, each station needed a number of telegraph operators to transfer the messages between the two line sections connected to the station.



The early Alice Springs Post & Telegraph Office, rejuvenated to restore its original appearance



Alice Springs Telegraph Station around year 1880

Further down the track of time, technology was such that transfer of telegraph messages from one section connected to a Repeater was transferred automatically to the other, firstly by electromagnetic machine and later by electronic circuit. But in the era of the 1870's, it was done via the human hands of the telegraph operators of the Repeater Stations. This took time and quite a bit of time when multiplied by the time of the 13 Repeater Stations. If one had a telegram of 100 words and the 13 pairs of operators received and sent at 25 words per minute without stopping, how long would the telegram have taken to get through all the repeaters? Try working it out!

The original telegraph line was a single galvanised iron wire supported by porcelain insulators mounted on the poles. The natural earth was used as the return conductor. Whilst the earth itself was quite a good conductor, attenuation of the telegraph signal was mainly due to the resistance of the connection to the ground. Loss resistance could have been lower had more work been done, such as a large metal plate or a mat of wires buried in the moist sub-surface. One can well imagine how dry the surface layers would have been in the vast desert like regions in northern South Australia. Better earth connections could well have reduced ground loss to the extent that Repeater Stations would have been spaced further apart,



reducing the number of them and needing less people to operate the whole telegraph system.

**Lineman working on one of the poles
A second single wire has been added to
the first. This was done later than the
first, means for
technical and line staff to talk with
each
other down the line using ordinary
telephones with balanced line
connection.**



Telegraph Terminal displayed in Alice Springs old Repeater Station

The northern line progressed well until the monsoon wet season in November 1870. Heavy rain waterlogged the ground and made it impossible for work to continue. After weeks of strikes and arguments with the contractors, the northern section contract was cancelled and the South Australian government had to construct an extra 700km of line placing considerable stress on its resources.

The southern and central sections were completed within the time stipulated but the northern section fell behind schedule after the wet season hit. Todd concentrated his resources in the north, and the southern and northern lines were connected at Frews Ponds (35 km south of Dunmulla) on 22 August 1872, seven months behind schedule. The origin plan had been to finish the northern section early in the year corresponding to when the other sections finished and when the undersea cable link via Java was expected to be finished in December 1871. As it turned out, the undersea cable link finished earlier than expected in November 1870.

The Overland Telegraph cost £239,588; almost double the original budget. But what of the gains?

After the Event & What are the Gains?

Only months after the completion of the Overland Telegraph in August 1872, it was connected with the newly finished Java-to-Darwin submarine cable. Australia was then connected to the world and the first telegram was received from England in October 22, 1872. News that had previously taken months to reach England, could be transmitted within hours.

The Overland Telegraph changed the way Australia related to the world and the country's extreme isolation was broken. Newspapers printed line sections by electric telegraph and businesses clamoured for news from the European markets. Telegraph offices, especially in rural areas, became centres of trade where information and banking were transacted and orders placed.

The telegraph line also opened up the centre of the continent. Within a year of its construction, gold was being mined around Pine Creek (near Katherine) and within ten years the cattle industry had been established in the Northern Territory.

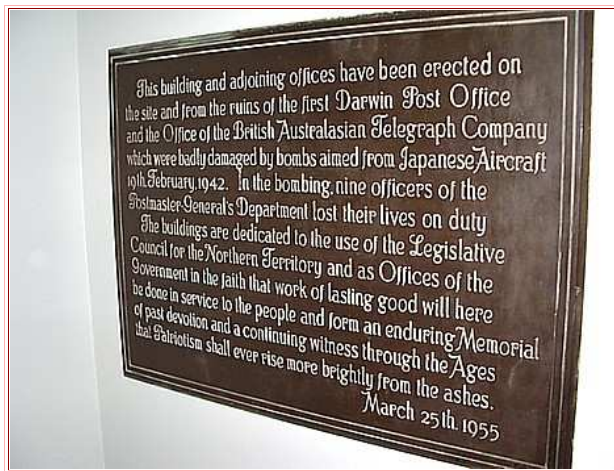
Prospectors and graziers used the repeater stations as centres from which to explore and stake claims on the land. Alice Springs, which was established as a repeater station, became the administrative hub for central Australia.

When World War 2 commenced, the north really became active, and particularly so, when Japan entered the war and advanced southwards. The Northern Territory was saturated with members of the armed services. Civilian workers were busy with construction projects, making roads and building accommodation facilities.

The single wire telegraph line was replaced by balanced pairs. Some of these supported carrier telephone and carrier telegraph circuits from Adelaide to Darwin and from Tennent Creek westward into Queensland. New repeater stations for the carrier systems were built spaced around 300 km apart,

The Darwin Bombing

On February 19, 1942, Darwin and a number of other inhabited locations in the upper north were attacked from the air by the Japanese. Lives were lost including those of the Post and Telecommunication departments. There was damage to buildings and equipment and ships were sunk in the harbour. (Not to forget the interference to the telegraph system other telecommunications, the main subjects of this article).



Plaque installed in the Territory Legislative House to honour those who died in the Japanese air raids in 1942-1943



On February 19, 1942, a direct hit by Japanese aircraft destroyed this Darwin Post Office. Staff members who worked in the building had sought refuge in an air raid shelter which was also hit and ten staff members were killed.

But life in the north moved on. The wire pairs and the line carrier systems of the 1940's have been largely replaced by modern Microwave Radio Links, Optical Fibre Cables and Satellite Systems. And now, in 2019, it is some 150 years from when the first telegraph line from south to north was made active in 1872,

In the September issue of OTN, editor Bill Roper VK3BR had prepared a sidebar of research information which the writer had collected on the Darwin Bombing. This is reprinted following:

The 1942 attack on Darwin Post and Telegraph Office

The first air raid on Australia occurred on 19th February 1942 when Darwin was attacked by a total of 242 Japanese aircraft. It is estimated that about 240 people were killed and as many as 500 injured in the raid which targeted the flotilla of ships in the harbour and key infrastructure within the town.

Occasional attacks on northern Australian towns and airfields continued until November 1943 including 64 further raids on Darwin, nine raids on Horn Island, four raids on Broome, three raids on Exmouth Gulf and three raids on Townsville.

That first raid on Darwin was launched by 188 aircraft from four aircraft carriers in the Timor Sea. The bombing commenced just before 10.00 am and lasted approximately half an hour. Amongst the targets was the Darwin Post Office which suffered a direct hit.



The Darwin Post and Telegraph Office in ruins after being bombed on 19th February 1942.

Taking cover in a slit trench in the backyard of the Postmaster's residence were Hurtle Bald, the Postmaster, his wife Alice, their daughter Iris, four telephonists - Emily Young, Jennie Stasinowsky, and the sisters Eileen and Jean Mullen - a Postal Clerk named Arthur Wellington, a Telegraph Supervisor by the name of Archie Halls, and Walter Rowling, a Telegraph Mechanic. All were killed instantly. Civilians in the Darwin township also died during those first attacks,

Those killed at the Post Office had volunteered to remain in Darwin despite the growing threat posed by Japan as WWII edged ever closer to Australian shores

A firsthand account of that infamous 19th February raid was supplied by the late Ray Deane VK5RK who spent quite some time in Darwin at the RAAF Signals Office next to the Post Office. On



The plaque installed in the Legislative Assembly of the Northern Territory to honour those who died in the Japanese air raids on 19th February.

19th February, Ray was on duty, monitoring an AR7 receiver, when the first warning of a Japanese air raid took place. He heard an American fighter pilot say, "Zero Zero" and this was the first mention of Japanese planes in the area. Sightings of the enemy aircraft over Garden Point on Melville Island were later confirmed by Local Region Observers.

About an hour later, just before 10.00 am, the first raid on Darwin began. Ray often said that he was prepared for such events as he and a fellow wireless operator had dug a separate small trench under a tree near the Post Office. The trenches were strafed and dive bombed by the Japanese aircraft. On looking up from their trench, Ray said he could clearly see the Japanese pilots. The Post Office trench was more exposed from above and it was badly hit by the attack.

The first attack ended 42 minutes after it began and there was a lull of just over an hour before the second wave arrived.

The second wave of 54 land-based Japanese bomber aircraft attacked the RAAF base just before noon. This raid lasted approximately 20 minutes. Six RAAF servicemen were killed and nine aircraft on the ground were destroyed. Most of the RAAF base buildings were destroyed or damaged. The Japanese lost between five and eight aircraft.

The sidebar on the Bombing of Darwin as published in Sept 2020 OTN

Following the publishing of the sidebar in OTN September 2020, Bruce Bathols VK3UV sent in a report of his father's experiences in the Darwin Bombing. His report certainly adds to the detail of what we have been learning now about the Darwin raid. The report appeared in the March 2021 issue of OTN and a copy follows:

The bombing of Darwin in 1942

Reading Lloyd Butler VK5BR's article *The early Australian south to north telegraph line* in the September 2020 edition of *OTN Journal*, particularly the sidebar *The 1942 attack on Darwin Post and Telegraph Office* which appears on page 14, prompted me to write about me and my parents' adventures in and around Darwin at that time.

I was a 'war baby', born on 20th January 1941 at Bethesda Hospital (now Epworth) in Richmond Victoria. At six months old, I was taken to Darwin to meet up with my Dad, who was in the army stationed there at the Larrakeya Barracks. He was a Warrant Officer Armourer in the RAEME (Royal Australian Electrical and Mechanical Engineers) and, because he was an 'officer' and married, he lived in married officers' quarters, and so was allowed to have his family with him. Dad had previously served in Townsville as a weapons trainer, then later served in Papua New Guinea, and the Solomon Islands.

Mum and I were flown to Darwin from Adelaide in an old Douglas DC2 plane. The DC2 stopped at many stations on the way to Darwin, and I believe the overall trip took several days due to the stopovers and fuel stops.

On the last leg to Darwin, the plane went off course and missed Darwin. It was late afternoon/early evening and Dad was in the control tower listening to the radio traffic when mention was made that the plane was lost and it would probably crash because it was low on fuel.

The pilot asked if the searchlights in Darwin could be turned on and shone vertically. This was done and the DC2 pilots were able to see the search lights, which enabled them to establish they were 90 miles off course and way out to sea.

By this time the fuel in the plane was so low that the pilots shut off one of the DC2's two engines to conserve fuel. Mention was made in the control tower that, "They are goners - they will never make it back to Darwin". Dad heard this comment! Naturally he was quite upset and exclaimed something like, "You have to do something! My wife and six month old son, whom I have never seen, are on that plane!".

The plane only just made it to the airport at Darwin. As it landed it ran out of fuel and the sole engine on which it had been flying stopped. It was a close run thing!

We were evacuated in December 1941, as the army had become aware of the impending bombing of Darwin, which eventually occurred on 19th February 1942. Mum and I were shipped home via Sydney on the SS *Zealandia*, a merchant ship. It had on board the women and children from Darwin and a number of other places.

The trip from Darwin to Sydney took six weeks and was very trying for Mum. From Sydney she then had to get the train home to Melbourne.

After returning to Darwin, the SS *Zealandia* was bombed and strafed in the Japanese attack on 19th February 1942 and sank in Darwin harbour leaving only her masts clear of the water.

Later, in the reports of the bombing of Darwin, the authorities covered up the actual damage and loss of life that had occurred. During WWII it was reported

that only a few people were killed, but post war it was eventually revealed that several hundred perished in the bombing.

*Bruce Bathols VK3UV
RAOTC member No 1090*

Report by Bruce Bathols on the Darwin Raids with particular reference to the Airport and the airborne operations.as published in Sept 2020 OTN

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