

The Search for Mawson's Wireless Sets. – by John Gillies

My search began in February, 2004, at the launch of the Mawson station Jubilee stamps, at the Post Master Gallery, in Melbourne, on the 50th anniversary of the founding of Mawson.

In the gallery, was the wonderful model of Mawson's Hut, (erected at Cape Denison, Commonwealth Bay in 1911), made by Rod Mackenzie (Repstat 68). Rod had received the plans of the hut, as a gift from his daughter Jenny (Q92, D95) and made the 1/12th scale model from Baltic Pine.

In the corner of the workshop was a scale model of the wireless which attracted my attention. I asked several museum people at the function if they knew what had happened to the wireless sets. No one knew.

Douglas Mawson's **'The Home Of The Blizzard'** gave descriptions of the installation of one of the sets at Macquarie Island (Q), (call sign MQI) and the subsequent attempts to erect an antenna and communicate, while at Cape Denison in 1912.

Mention is made in the book of the erection of a new antenna by the crew of the *Aurora* while they were waiting for Mawson to return in 1913. On February 8 after Mawson returned, the ship heard the station calling them back. Macquarie Island was heard on Feb. 18 and two-way contact made on Feb. 20 briefly and for an extended period on the 22nd. There is more mention of the news from the outside world, the problem with maintaining the antennas and the breakdown of Sydney Jeffreys.

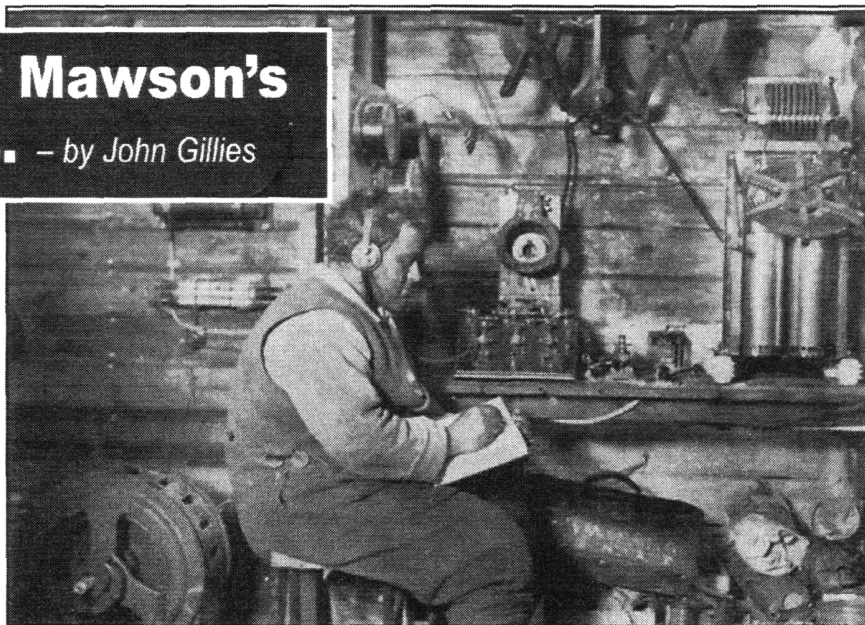
The appendix of **'The Home of the Blizzard'** has an entry, 'Two complete sets of Telefunken wireless apparatus were purchased from The Australasian Wireless Company (AWC). The motors and dynamos were got from Buzzacott, Sydney and the masts were built by Saxton and Binns, Sydney. Manila and tarred-hemp ropes were supplied on generous terms by Melbourne firms (chiefly Kinnear).'

'Mawson's Antarctic Diaries' edited by Fred and Eleanor Jacka, have a few more details which I had not known about., viz:

1 March, 'Hodgeman gets space in main hut for wireless gear.'

9 – 15 March, 'Wireless brought into main hut.'

The famous photo by Frank Hurley, of Walter Hannam sitting at the wireless set in the corner of the workshop hut, shows most of the equipment. Most of this was evidently moved into the main

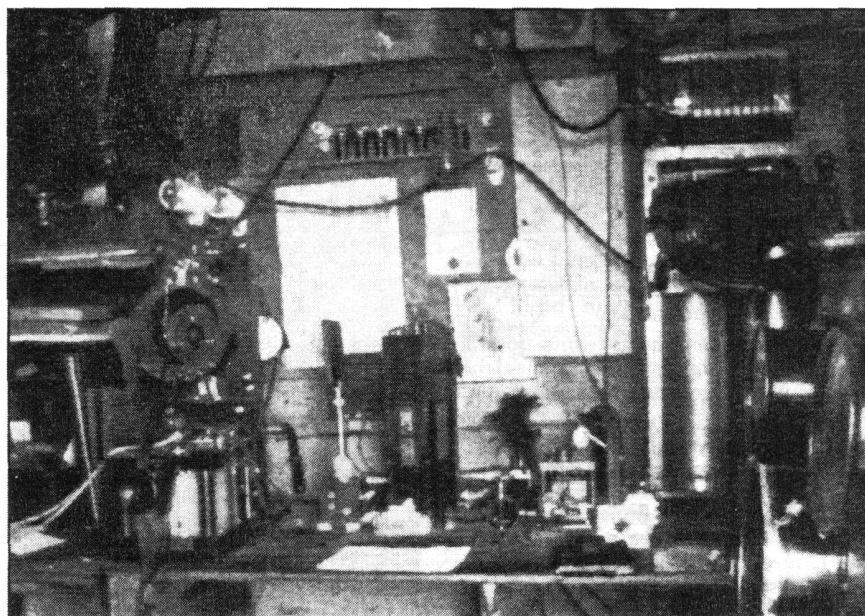


Walter Hannam at Commonwealth Bay. – Photo by Frank Hurley.

hut, into an area where the bunks of Dyce-Murphy, Whetter and Hannam had been removed by Hodgeman. These bunks are missing in the hut at the moment. This area is adjacent to where the equipment was installed in the south-east corner of the workshop.

The north-east area of the main hut has been partly excavated and I could see that there were no bunks there, during my visit in 2005. At that time, I had not been aware that the wireless had been shifted into the main hut, so I did not pay a lot of attention to that area. By the size and weight of the transmitter and receiver, they would have needed to be fixed to a table or bench.

On my trip on the *Mariana Svetaeva* in 2005, I renewed my interest in the fate of the wireless. On the voyage I read a book, **'Polar Castaways'** by Richard McElrea and David L. Harrowfield, which mentions that the *SY Aurora* had a wireless fitted following a collection being taken up in Sydney after a newspaper appeal by the Sydney Morning Herald and the Sydney Daily Telegraph on 3 December, 1914. This was a Telefunken set as confirmed by John Hooke, son of Lionel Hooke the radio operator on the *Aurora* (call sign WVSQ). However, the only contact was with the New Zealand (N.Z.) station at Awarua (VLB), to ask for assistance, when the



Wireless Hill station Macquarie Island. – Photo by Arthur Sawyer.

Aurora had drifted out of the pack ice and had limped almost back to New Zealand, as reported by Kelly Tyler-Lewis in her book, **'The Lost Men'**.

I communicated with Stephen Haddelsey, author, of **'Born Adventurer Frank Bickerton'** and he wrote, "I can say with a lot of confidence, that the Telefunken set used on the Imperial Trans-Antarctic Expedition was the same as that used on, the Australasian Antarctic Expedition (AAE)."

What happened to the set after that? Some reading suggests it was removed and cleaned, while the *Aurora* was being repaired in New Zealand. At that time there was the ruction about J.K. Davis taking command of the *Aurora* instead of Stenhouse. When Stenhouse was sacked, Lionel Hooke was put off as well. However, I could find no reference to the wireless in Stenhouse's papers for this period. The only person to continue on the *Aurora* was Aubrey Ninnis.

J.K. Davis wrote to his father, that they had a new, more powerful, 2.5 kilowatt wireless set, from somewhere in N.Z.. Davis had not been on the *Aurora*, when there was a wireless transmitter on board. There was only a receiver, on the relief voyages he commanded in 1912 and, as far as I can find out, later in 1913, when Mawson was finally picked up and brought back to Australia, in February, 1914.

While I was searching at the Scott Polar Research Institute in Cambridge, England, I ran the legs off Naomi Boneham, the Archives Assistant there, reading through material from that era. I tried to find some mention of the sale of the *Aurora*, when Shackleton had finished with it in 1917, to an American company. There may be some information in the papers of the lawyer they used in New Zealand. Unfortunately the *Aurora* disappeared near N.Z., on its way to South America from Australia, in 1917 and is thought to have hit a German mine.

Trying to find more information about the wireless, I went to Adelaide several times and was helped by Mark Pharaoh to look at the records held in the Mawson collection, at the South Australian Museum. There were a number of interesting bits of correspondence from Mawson, regarding the wireless. He wrote to various companies requesting information and possible prices. In an undated letter to Amalgamated Wireless Australasia (AWA), he mentions an offer of a wireless by Jesuits, but was reluctant to take up the offer.

From previous research on AWA papers in the Mitchell Library in Sydney, while looking for information on the repurchase of the wireless equipment, I had read that a Father Shaw in Sydney, was manufacturing wireless sets and was in dispute with AWA for patent infringements by copying Marconi equipment.

A letter to Mawson from AWA, 27 March, 1911, said that wireless would not work over that distance. Another letter from AWA, 29 March, stated that, for a wireless to work over that distance, it would cost 20,000 pounds and that small 'sledge' wireless sets were not available.

Mr. Hugh Denison was one of the original donors of one thousand pounds to the expedition. He was the General Manager of the Australasian Wireless Company (AWC) and this company was the agent for Telefunken wireless equipment in Australia.

In a letter to the expedition secretary, 13 Feb., 1912, Mr. Denison wrote that the sets were sold for 650 pounds each and AWC had offered to buy them back, for half price, when they returned. AWC was merged with AWA in 1913, which complicated the search.

In February, 1912, no wireless contact had been heard from the expedition and the newspaper that had paid for the exclusive news, was becoming agitated at the lack of information. This rattled the expedition secretary, Conrad Eitel, who set out to acquire some new wireless gear and send it to Macquarie Island. He sent letters to AWC saying that their equipment was no good and that there would be legal action against them..

Father Shaw offered a wireless plant, for 2000 pounds, that had been installed on King Island. Eitel went as far as paying a deposit for hiring a ship to go to Macquarie Island.

Contact was eventually made with Sydney when all the equipment was installed in the huts built on Wireless Hill. First contact from Macquarie Island was with a ship on 13 February. When contact was made with Sydney, Eitel cancelled the legal action and the hire of the ship.

On 25 September, 1912, Macquarie Island heard a singing spark (the characteristic note of the Telefunken spark transmitters) call sign MAL (Mawson in Adelie Land), which meant that the transmitting set was working at Cape Denison.

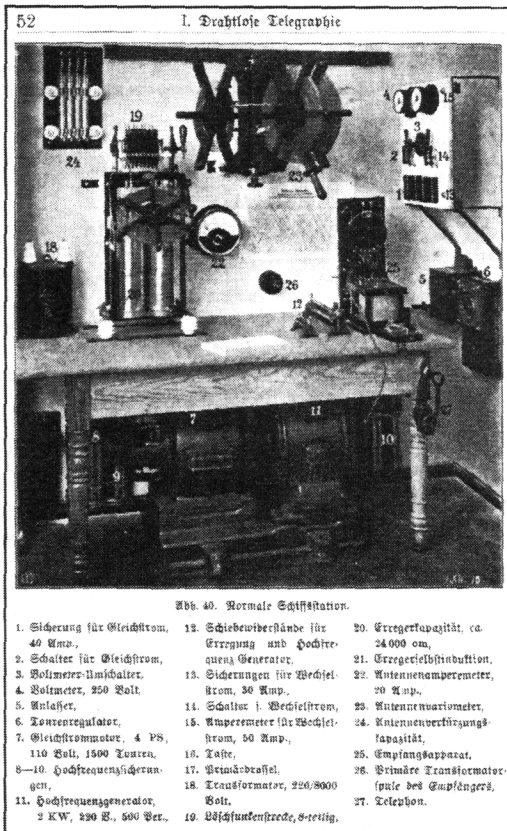
The wireless sets bought by Mawson were a spark gap transmitter and crystal set receiver. The set worked on a wavelength of 600 metres (about 466 kilohertz). These sets were meant for medium-size ships using Morse code. There were no electronic tubes (valves) in the set for any amplification.

The Telefunken transmitter, used a type of spark gap called a Quenched Spark Gap. It was a great success owing to the very high rate of switching. This gave a tone to the transmitted signal, which made it easier to distinguish from the background noise in the early crystal set receivers.

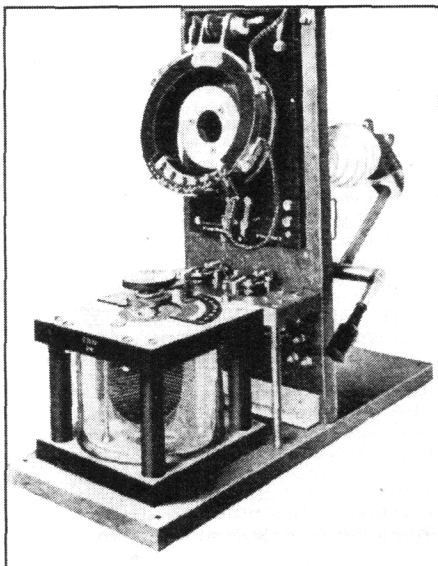
The type of crystals available for the receivers Mawson bought, is not listed anywhere but in the stocktaking list prepared by Charles Sandell (wireless operator and mechanic), when handing over the wireless equipment to the Bureau of Meteorology, a 'detector potentiometer type HB14 No. 3083' is listed. This indicated that a carborundum detector, was at least one type used. In the Telefunken catalogue it says that, 'Carborundum detectors had good sensitiveness (sensitivity) with additional battery, great overloads permissible and cannot get out of order (mechanical alignment) through vibration.' The catalogue also lists potentiometers for carborundum detectors. However, the only catalogue (from 1917) in the Berlin Museum archives, does not have any numbers that match the numbers in the stock-taking list from Macquarie Island.

In the photo of Hannam, on the previous page, the panel in front of the receiver switch beside him, looks like it has at least two adjustable potentiometers. The photograph, taken by Sawyer on Macquarie Island, on page 22, shows the equipment in a slightly different layout, without the panel in front of Hannam in the Hurley photo.

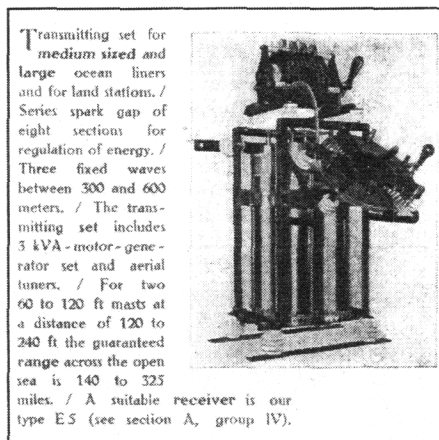
I had asked Allan Moore (M63, 65), who wrote the series (published in *Aurora* over a number of issues), **'50 years of Australian Antarctic Radio'**, if he had any contacts, from when he had



Copy of page from *'The German Radio Systems until 1945'* book, courtesy Telefunken Museum, Ulm, Germany.



Copy of Telefunken Catalogue picture of Model E4 very similar to the photo of the Macquarie Island equipment.



Copy of section of Telefunken catalogue with the English text for the type of transmitter unit as seen in the AAE photos.

worked in Germany, who might know of a Telefunken Museum. He suggested writing to the Australian ambassador there, explaining my search. I received a reply from Regine Pankuweit, Research Officer Economics/Technology at the Australian Embassy in Berlin, with the Email addresses of two possible contacts in Germany. The first was a Telefunken Museum in the city of Ulm, the other, the German Museum of Technology in Berlin. When I contacted Fritz Arends at the Telefunken Museum and explained what I was after (circuits and construction details of the 1911 equipment), he replied that all the paperwork had gone to the Museum in Berlin. However, he found a photo of the equipment in the German publication, **'The German Radio Systems until 1945'** (3 volumes), describing the first 40 years of radio systems. He offered me the set of books, but they were all in

German, so I asked him to scan the pages of the section relating to the 1911 equipment. (See picture on the previous page.)

When I contacted Herr Hoppe, at the German Museum of Technology in Berlin, he advised that they did have some equipment of that era that was being restored.

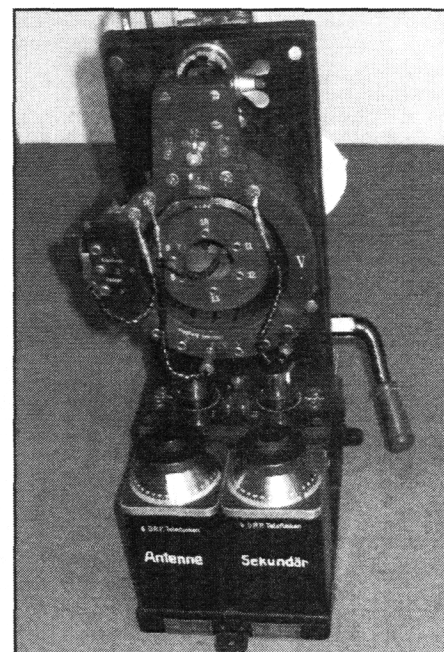
As I had planned a trip to Europe later in the year, I rearranged our travel plans, to spend a day in Berlin. I was fortunate to find a receiver unit that had just been restored, still in the conservator's workshop and was able to examine it closely and take many photographs. It was a later version of the same unit, but it gave me an idea of the sizes of the unit. Herr Hoppe said that they had some of the transmitter parts stored at another site, so I was not able to see them. However, I was able to look through the archives of the Telefunken papers and old catalogues to see equipment that matched the Hurley/Sawyer photos. The earliest that the papers went back to, was 1917; some of the pictures were very similar and had circuits that I was able to understand.

When I saw the receiver unit, I was surprised at the complex rotary knife switching mechanism, that is not visible in the AAE photos and the aerial changeover switch that was operated by a lever, like the old one-armed-bandit poker machines. Some of the contacts that are operated by this handle, switch the detector diodes out of the circuit when the unit is in transmission mode and apply power to the transmitter unit.

I can see how condensation in the cold workshop room, could easily have built up a film of ice in these switches and not be noticed because they were at the back of the unit. This could explain how contact with Macquarie Island was first made in late February, when the room may have been above freezing for some time and later, when the set was brought into the main hut where it was considerably warmer; it would also have prevented the build-up of ice on the switches.

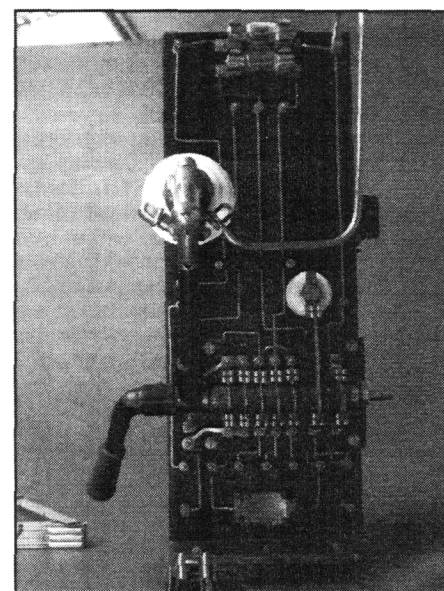
For some time while researching the fate of the original wireless set, I had been on the look out for suitable material to use to build a replica of the spark gap transmitter. The Leyden jar condensers (early capacitors) were a big problem. I had no idea of the size necessary, only a rough dimension scaled from the photos. I had found plans of a Quenched Spark Gap unit on the internet.

When I first saw the switching mechanism on the receiver unit, I thought that it would be too difficult to replicate it. However, after studying the photos I had taken, to figure out how everything worked, I began looking for material to



Model 5E receiver that has just been restored in Berlin.

- Photo by John Gillies



Back view of restored Model 5E receiver unit in Berlin.

- Photo by John Gillies

use to make the wireless set as similar as possible. I analysed the photos I had taken and scaled the transmitter unit from the catalogue dimensions of the Leyden jars and the dimensions of the receiver unit, I thought I would have a go at constructing a replica for the Centenary of the AAE in 2011.

Fortunately the ANARE Club President, Brian Harvey, has a large collection of material in his factory, together with a large lathe that has enabled me to get started on building a replica.

To be continued.

Building a Replica of the Wireless Set used by Douglas Mawson's 1911 Australasian Antarctic Expedition

— By John Gillies

Continuation of article, 'The Search for Mawson's Wireless Sets', from *Aurora*, December, 2008.

In the article titled 'The Search for Mawson's Wireless Sets', which I wrote for *Aurora*, December, 2008, (Pages 22 to 24), I made some errors. On Page 22, I wrote that, by my observation during a visit to the hut in December, 2005, the bunks of Herbert Dyce-Murphy, Leslie Whetter and Walter Hannam were missing.

In later years, excavation of the ice in that area has exposed Dyce-Murphy's bunk, with the writing in the wall, 'Wireless 1913'. There is still more excavation to be done in that area, but there were some electrical wires among the ice.

I had wondered why no photographs of the radio in that position existed. There were other people on the Australasian Antarctic Expedition (AAE) with cameras, but the only photographs of the hut interior were taken by Frank Hurley with the flash equipment he had. When Hurley arrived, in 1913, the wireless equipment had been packed up for return to Australia a month before *Aurora* arrived to take them home, explaining the lack of other photographs of the wireless.

The bunk of Herbert Dyce-Murphy was just inside the door into the main hut from the workshop. Douglas Mawson and Dyce-Murphy were the only two people to have single level bunks.

Just what parts of the wireless were brought into the main hut, I am not sure of, at the moment. If the transmitter section was shifted there as well, there would have been considerable rewiring of the power system.

As the aerial changeover switch is on the receiver unit, there must have been quite a few wires through the wall into the workshop.

Because the receiver did not need any power to operate it, Sydney Jeffries could have listened on the headphones, while lying on the bunk used by Leslie Whetter in 1912.

BUILDING THE REPLICA WIRELESS

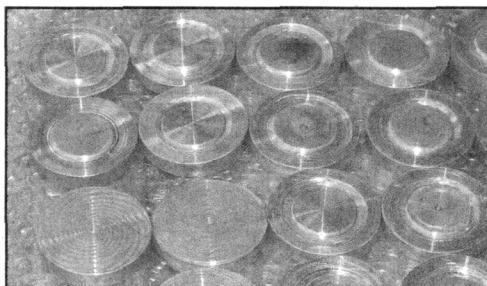
I have written an article about building the replica for the Historical Radio Society of Australia. It is being published in their journal, *Radio Waves*, over several issues. This account is a shorter, less technical version, and not all in chronological order.

The Beginning

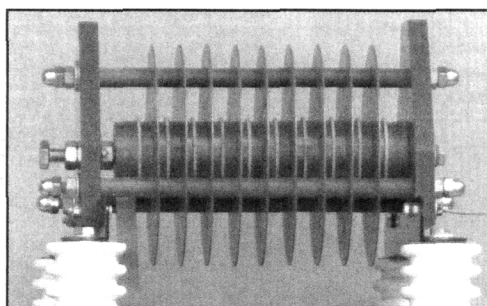
The first item I started work on was the 'quenched spark gap' unit. I had

previously downloaded, from the internet, a description of how to make one.

Brian Harvey (M77, Q79, C83), then ANARE Club president, had some large sheets of copper. I was able to cut them into rough circular shapes, then bolt them to a jig to hold them all together, so they could be turned in the lathe to make them round and all the same size, for the heat sink fins. These dissipate the heat caused by the spark action. Brian also had some large copper rod that I turned to make the electrodes. These are enclosed inside large mica washers, that the spark jumped between.



Copper electrodes for the spark gap section.



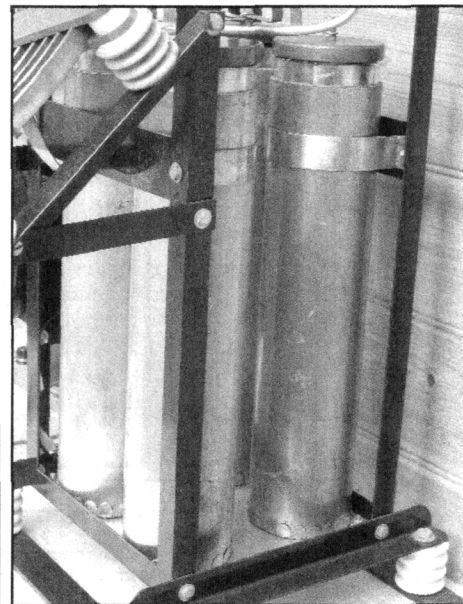
Spark gap unit assembled with large heat sink fins. Mica washers can be seen between the electrodes.

I had to have the washers made by a manufacturer in Melbourne, Victoria.

The 'quenched spark gap' unit is mounted in an insulating frame. The end sections are cut from a sheet of paper bakelite that Brian also had in his workshop. There is a tension screw at one end to keep the gaps inside the mica washers airtight to reduce oxidation of the electrodes.

Leyden jars and transmitter coils

The Leyden jars, an early form of capacitors, took a few iterations. Firstly glass coffee jars, which cracked in the cold weather. Then to large glass tubes which have thin brass sheets fixed inside and around the outside before being inserted into 100 mm brass tubes, to make them more robust. The tubes had a circular 'finger contact' at the base to make contact with the outside brass sheet. The four Leyden jars were

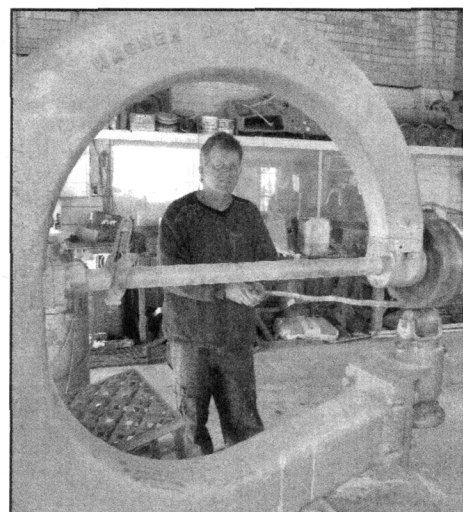


Four of the brass tubes, containing the Leyden jars, mounted in the transmitting section frame.

mounted in a frame and clamped into position, with the outsides of all the tubes connected to the frame. The tubes have wooden caps, with spring fingers that make contact with the brass sheet inside the tube. They can then be connected together to make different values of capacitance for the tuned circuit that selects the frequency to be broadcast.

These actually work by storing the electrical charge as a stress in the glass.

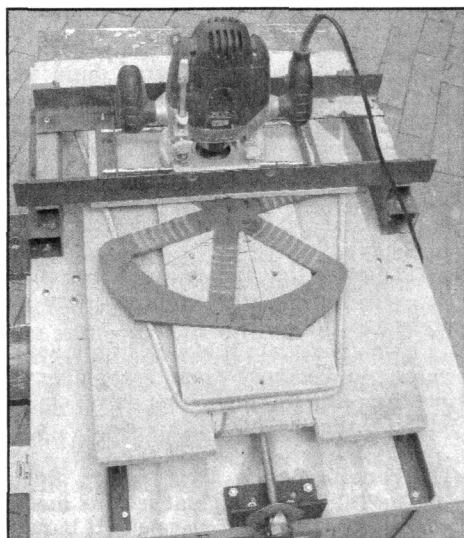
The other part of the tuning circuit, seen in Hurley's photograph and the German Telefunken catalogue pictures, is a spiral coil mounted on the frame of the transmitter unit. To make this look realistic I had some 13 mm diameter copper waterpipe, flattened by a panel-



Copper pipe being flattened in panelbeater's rolling machine.

beater's rolling machine, until it was about 2.5 mm thick. It was then annealed to make it soft enough to be wound into a tight spiral.

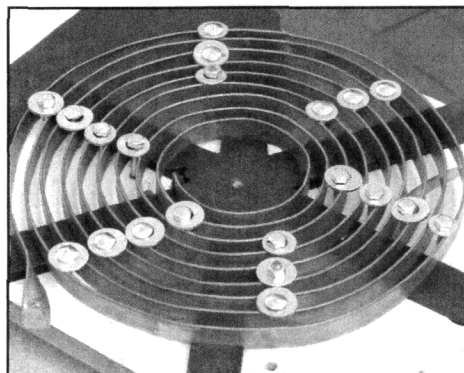
Initially I made the temporary coil formers out of medium density fibre-board (MDF), but they were not solid enough when grooves were routed into them, to hold the copper pipe in the spiral shape. However this proved that the idea would work. Brian Harvey had some more paper bakelite sheet that I was able to shape into six-arm formers for this coil, and the coils for the variometer, part of the antennae matching unit.



Jig to rout the grooves in the coil formers.

I made a jig to hold the former shapes on a sliding platform with the router fixed above it. A long screw advanced the platform holding the former 2 mm for one turn, as the former was rotated 60 degrees, making grooves 12 mm apart, in each arm of the face of the former.

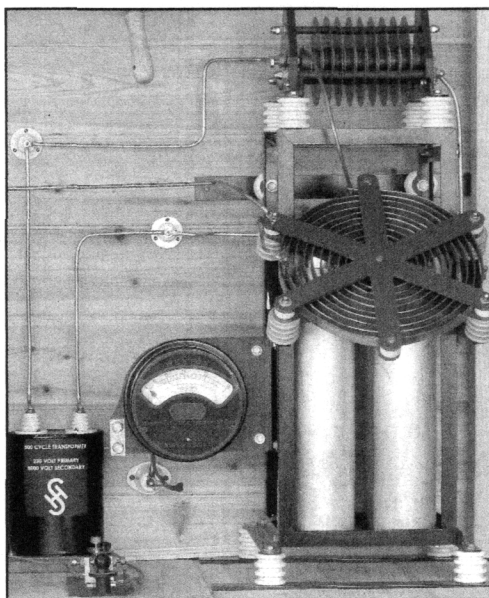
The formers were bolted to another sheet of wood and the copper strip wound from the tight inside diameter to the larger outside. Each turn was held in place by a lot of bolts and washers until the other face of the former was placed on top, and the copper strip



Flattened copper strip held temporarily in spiral coil shape.

manipulated into all the matching grooves. When the former sides were fixed together, all the temporary holding bolts were removed.

From the circuits I had found in the German Telefunken catalogues, I was

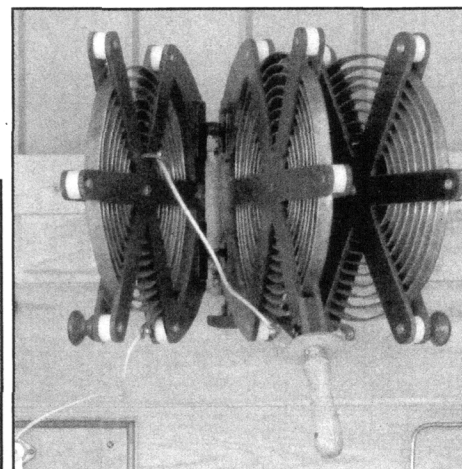


Transmitter unit.

able to figure out how the transmitter section was connected. The spark gap was operated by a large voltage (8,000 volts) applied to the unit, from a transformer that had 220 volts at 500 cycles per second (c.p.s.) applied to the primary winding of the transformer, when the morse key was operated. This generated a spark with a tone of 500 c.p.s. which could be distinguished by the receiving station from the normal atmospheric electrical static and lightning-generated noise received on Macquarie Island.

The transformer in the replica was made to this shape by soldering a piece of tinfoil around two oval-shaped empty herrings tins. The top was reinforced with a heavier piece of steel and the insulators fitted on top. These parts were then mounted on a wooden block, with wires passing underneath, for the morse key to operate a relay under the bench.

The variometer unit was made using three spiral coils, made in the same way as those for the tuning coil for the transmitter. This unit is used to 'impedance match' the transmitter to the aerial system, so that the maximum power is transmitted towards the receiving station. It works by making the magnetic fields of the coils interact, making the total inductance appear larger or smaller, depending on their connection and position of the coils. Once they are positioned for the maximum power transfer, they are locked in position by a large nut on the axis of the coils.

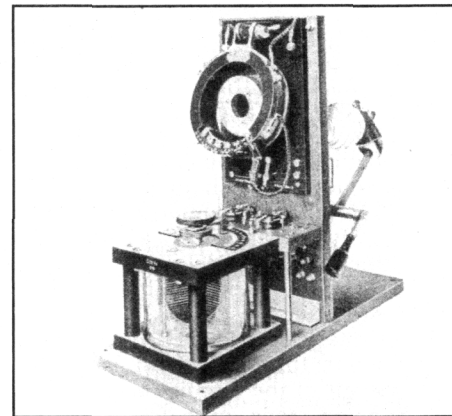


Three coils of the variometer unit.

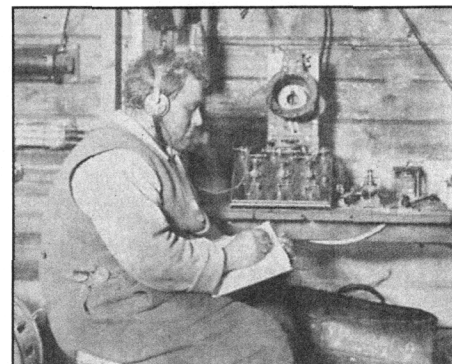
Mawson's Telefunken receiver unit

The Telefunken receiver unit was a tuned primary, crystal set. The photograph, taken by Hurley, of Walter Hannam in front of the wireless set at Commonwealth Bay, just shows the top front of the receiver unit, with the coupling coils visible. There is a panel propped in front of and hiding the tuning capacitor, which is shown in the following Telefunken catalogue picture of a 1911 model receiver.

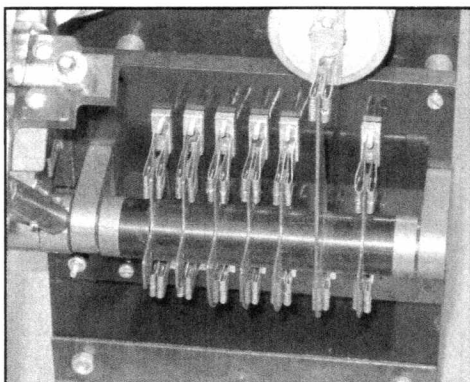
I was puzzled for a long time as to what this panel was, but recently found some pictures on the internet of a multiple detector panel. This was a unit with a number of different types of crystal



Telefunken catalogue picture of 1911 model crystal set.



Walter Hannam at the wireless in 1912.
— Photo by Frank Hurley.



Replica rotary knife switch.

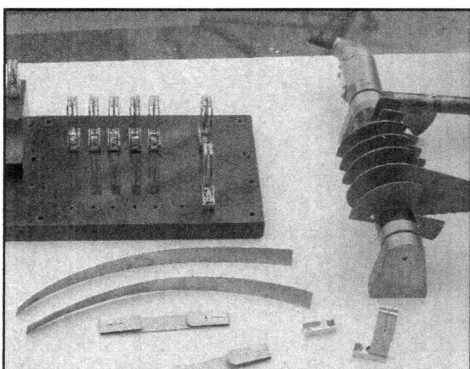
detectors that could easily be switched into the circuit to see which type gave the best signal in the headphones.

I was lucky enough to see a later model Telefunken crystal set being restored in the conservator's workshop of the German Museum of Technology in Berlin, Germany, when I visited in 2008. I was able to examine it closely to see how it operated and take many photographs. When I returned home and examined the circuits I had photocopied from the museum archives, I was able to determine eventually just what everything did.

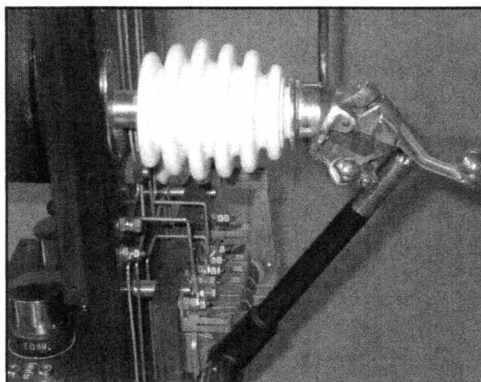
The rotary knife switch, at the rear of the receiver unit is not visible in any previous photographs and caused me some trepidation as to whether I could replicate it.

On the same operating arm was a lever that operated the aerial changeover switch. It had a heavy arm which was used to make sure there was a good contact between the aerial and the transmitter in the transmit mode. It took some figuring out, using the circuit drawings and the photographs I had taken, how the changeover switch worked. My replica arm is a mixture of the earlier 1911 model and the 1917 model that was being restored in the Berlin Museum.

The rotary knife switch has a number of banks: three banks switch the two crystals out of the circuit completely in the transmit mode, probably to prevent any damage to the crystals; two switch



Rotary knife switch components.



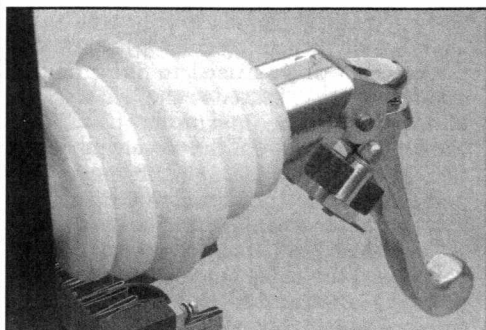
Insulator and aerial changeover switch on the Berlin Museum unit.

the 220-volt power to the morse key and transformer, in the transmit mode, preventing power being applied to the transmitter in the receive mode; and one bank removes the earth from the crystal set in transmit mode, an extra safety feature. The arm that operates the aerial changeover switch, also carries the aerial to the crystal set in the receive mode.

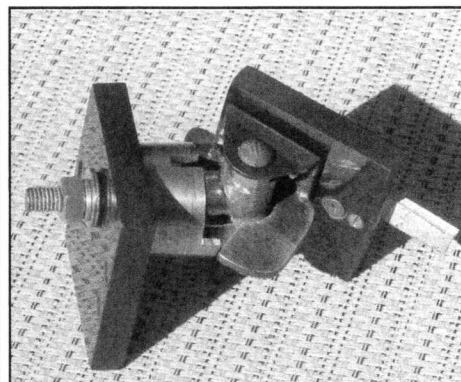
I cut the rotary switch blades from the copper sheet that was used for the heatsinks. They had a square section hole cut in the centre, which fitted along a square section of paper bakelite, so that they all rotated together. They were separated by short sections of Delrin tube. The pivot went through the centre of the square section piece of paper bakelite, which insulated them all. The angle of the operating handle took a bit of trial and error until I was happy. The handle is attached by some small grub-screws.

The fixed contacts of the switch were fabricated, again with a lot of trials, using bent pieces of brass strip, until I had the dimensions right, to make a jig to bend all the pieces of brass strip to the same shape. I used brass shim, nickel-plated before assembly, but the original was probably silver-plated phosphor bronze to maintain the contact pressure.

The aerial changeover switch on the model being restored in Berlin, was mounted on a large porcelain insulator, with special fittings to hold it in position, and hold the switch clear of the



Delrin insulator and aerial changeover switch on replica wireless.



Coil coupling rotator and tilting axle.

rest of the unit. I could not find anything like this, so I turned a large diameter section of natural (white) Delrin to a similar shape.

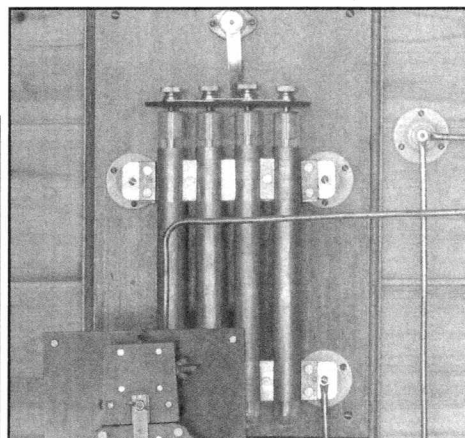
The aerial switch weighted arm was milled from a square section of brass, after numerous trials were done with wooden arms to get the shape correct to do the job.

The pivot that is fixed to the insulator, was milled from another piece of brass and later nickel-plated.

I was fortunate that one of my sons worked in a factory where I was able to use their drill/mill machine and a small lathe for those parts.

The receiver coils

The Telefunken crystal set was made to cover a number of wavelength bands with different coils that could be interchanged. The secondary coil could also be swung upwards to vary the coupling between the coils. To change this coil, it had to be swung up to clear the primary coil in the centre, then rotated through 90 degrees to enable it to be unplugged. This mechanism took some figuring out from the photographs I had taken in Berlin. It was eventually made with some plumbing pieces welded together. A retaining ring to prevent over-rotation, which would break the wires to the set was made from a section of brass tubing.



Mini Leyden jars for aerial matching circuit.

After a trial winding a coil with enamelled copper wire proved a failure, I was given a roll of fabric-covered Litz wire, used on the original coils, by a member of the Historical Radio Society of Australia.

I had joined the society a few months earlier and there met a fellow, Ian Malcolm, with whom I had worked in the postmaster-general's department (PMG) in 1968, between my years at Mawson and Casey. Ian had been a long-time member of the society and introduced me to Ian Johnstone, an avid collector of old radio equipment. He supplied the Litz wire and some of the old-type large meters that were used for measuring the voltage current and radio frequency current.

The aerial coupling capacitor

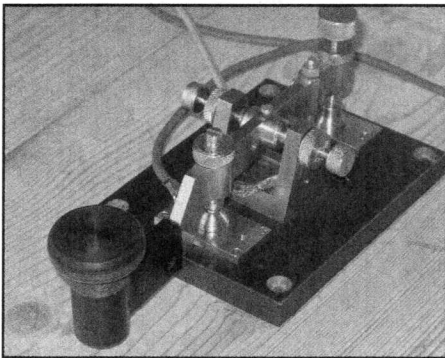
Seen on the wall under the variometer, this is part of the aerial matching circuit. It is made from several large glass test tubes with metal inside and shim brass around the outside, to make 'mini' Leyden jars.

I was lent an original Telefunken capacitor set by Ian Johnstone, to measure and copy. The original had shim tin on the outside which I could not find, so I used some shim brass. I coated the brass with plumber's solder, using a torch and wiping the solder over the surface, a small section at a time. This made a tin-looking surface.

Morse key

The morse key was milled from some brass bar to match one in a picture of a Telefunken key.

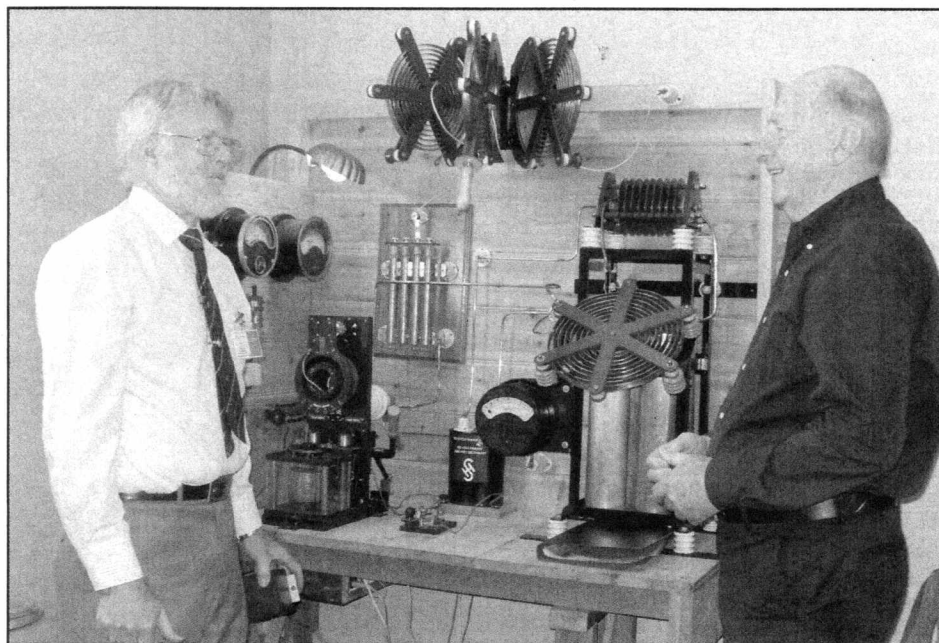
Most radio operators had their own favourite type of key, and usually took it with them. As this wireless set keyed the 220 volts at close to 10 amps, the contacts needed to be of large area.



Replica Telefunken morse key.

The bench and wall panel

The bench is made from one-inch-thick tongue-and-groove pine boards, again supplied by Brian Harvey. The original was probably made with off-cuts of the timber used to clad the building. The wall panelling is made from Baltic pine lining boards, of the same profile as those used to line the hut at Commonwealth Bay.



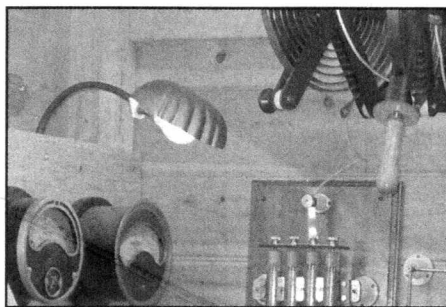
John Gillies (left) and David Jensen, Chief Executive Officer of the Mawson's Huts Foundation, with the completed replica at a Mawson's Huts seminar in Hobart, Tasmania, April, 2011.

— Photo by Anthea Wallhead.

The lampshade

A lampshade similar to the one in Hurley's photograph was very hard to find. I eventually carved a wooden scallop-shell shape, which I used as a mould to make one out of fibreglass. When the fibreglass was removed from the wooden pattern, the imperfections were filled with automotive body filler and sanded smooth. The inside was spray-painted white and the outside with a brass-looking paint.

The original lamp would have been powered by the 110-volt DC (direct current) generator that was used to supply power to the field coil of the 220-volt 500 c.p.s. generator, and for lighting the hut.



Fibreglass lamp shade, with a globe which is missing in Hurley's photograph.

Transformer and oscillator

Under the bench is a box with a transformer to power the 12-volt globe in the lamp. It also powers some electronics that replay a morse code message, (MQI (Macquarie Island) station calling MAL (Mawson in Adelie Land) station), with some radio-type noise, over the headphones.

There is also an oscillator that can sound a 500-cycle tone over a loud-speaker, when the morse key is operated. This is only for special occasions, when the perspex panel is removed to allow access to the key.

The finale

I took the wireless to Hobart, Tasmania, in April, 2011, for the Mawson's Huts Foundation seminar, where I assembled it in the Royal Society Room, of the Tasmanian Museum and Art Gallery (see photograph above).

Because the proposed replica of Mawson's Hut has not yet been built in Hobart, I decided to see if the Mawson Centre in Adelaide, whose curator, Mark Pharaoh, has been a great help in my research, would be interested in having the replica on display. He was only too happy to do this, so I added some legs to the bench. The original was fixed in the corner of the workshop in Mawson's Hut, but the replica would need to be free-standing. I bought some sheets of perspex to fix across the front and side of the bench as bracing, to make it more secure.

In late January, 2012, I took it to the Mawson Centre and, with the help of Mark Forecast (W65, M67, Q69), assembled it in a space there.

It is on public display in the Centre, behind the Adelaide Museum in North Terrace. Opening hours are between 10:00 a.m. and 4:00 p.m. weekdays.

Note: All photographs are by the author unless otherwise attributed.