

QUA FARC

Franklin Amateur Radio Club Inc. NZART Branch 10



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Meetings: Club meetings are on the third Tuesday each month in the clubrooms, 19 Stadium Drive, Pukekohe, at 7.30 PM. Visitors welcome.

Committee meets on the first Tuesday of each month (excepting January) at 7.30 PM in the clubrooms.

Subscriptions: Individual \$20, Family \$30, due December
See club secretary for bank account number

Nets: HF Sunday 9 AM, 3.700 MHz (Mike ZL1UOM); VHF Sunday 9.30 AM, 146.900 MHz (Peter ZL1PX); DMR on TalkGroup 5301, Wednesday 7.30 (Steve ZL1TZP)

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December Meeting

Steve ZL1TZP and Steve ZL1SPR spoke to the club at our December meeting on remote control of any transceiver.



Steve introduces remote control at December monthly meeting

See two articles below by Steve ZL1TZP and Steve ZL1SPR.

Next Meeting

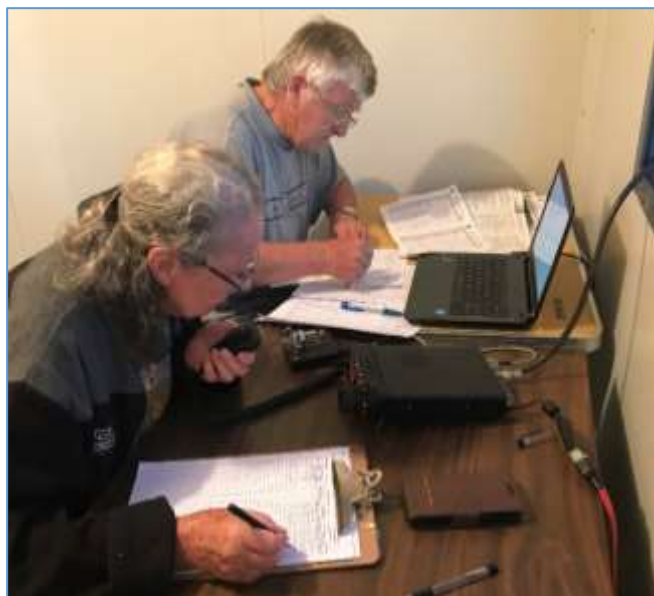
Our next meeting will be on Tuesday 21 January at 7.30 PM at our premises at 19 Stadium Drive, Pukekohe. Following the formal meeting, we will have a show-and-tell session with members invited to bring along some kind of amateur radio activity they have been working on that they will present to the club. Afterwards, we will be sharing coffee/tea and conversation.

Upcoming Events: Jock White

The Jock White Memorial Field Day Contest is to be held Saturday/Sunday 22nd & 23rd February. This is the biggest ham event of the year in New Zealand with clubs from all parts of the country seeking to set up equipment off-grid

and make the most contacts they can on the 80 and 40 meter bands.

All members are invited to attend this event at the Attewell Road property of Gary ZL1WGL. This event proved exciting and enjoyable last year with plenty of new ham participation.



Durlene ZL1ULK calls CQ on 80 meters while Tom ZL1TO calculates multipliers at Jock White 2022

Our plan is to assemble at the clubhouse at 10 AM, load up equipment and get site operational before 3 PM when the contest begins. Each hour is an operating period with a total of 18 operating periods: Saturday runs from 1500 to midnight. Sunday runs 0600 to 1500.

We will be seeking contacts on 80 and 40 meters on SSB and CW. Rules allow for simultaneous transmission on 40 and 80 but not within each band. Callers exchange and record signal reports, a serial number and a branch number.

Usually an operator shift is for an hour so we need a lot of operators. However as we will be trying for CW this year, there will be time when we are broadcasting in either SSB or CW and the alternate operator will get a break. Operators do not have to be licenced as long as the station remains under a licenced amateur's control so please consider coming along if you are studying for your exam.

Upcoming Events: Waiuku SteelNWheels



L to R: Durlene ZL1ULK, David ZL1MZ, Tom ZL1TO and Lynnette ZL1LL at Waiuku SteelNWheels 2022.

Waiuku Classic Car Steel N Wheels Festival will run on Sunday 13 April this year, the week before Easter. When we last attended this event, we adopted a talking demo. This year, we will give people a chance to send Morse code messages.

CW Training on Echolink

After a successful 2024, Franklin Amateur Radio Club will resume Morse code training on Monday 3 February 2025. Training sessions will be Monday, Wednesday and Friday at 8:00 pm NZT, 0700 ZULU. Character speed will start at 18 wpm with Farnsworth spacing of 5 wpm. We will keep this speed until all students are ready for a faster pace. Emphasis will be on accuracy rather than speed. It is assumed learners have already been introduced to all alphabet and number characters plus full stop, comma, question mark and slash.

All amateur radio CW enthusiasts are welcome but, and this is an important but, learning CW is a big commitment in time and energy so please consider carefully whether you have the energy and motivation to keep coming back to sessions. We would rather have a small number of dedicated trainees than a high number of people who only return for two or three sessions. It also helps if you maintain contact with us by email through the training so we are aware of difficulties or obstacles you encounter and can make changes to the lessons that will assist your progress.

Join the training by connecting to ZL1PX on [Echolink](#).

2025 Predictor

Your esteemed editor sent out this message to members recently... *"Each year at this time, I think about my ham radio progress and vaguely wonder what goals to set myself for the coming year. Perhaps you do this also. If you do, you might like to write me a sentence or two."*

Here are your responses...

Jason ZL2UJK

Locate my 2m rig, put up an antenna and assuming everything still works call "CQ CQ CQ this is ZL2UJK". Attend some FARC meetings this year.

Trish ZL1TTM

Participate 690 nets at least 2 x month. (I'm on others including PRS nets so time mindful). Attend AREC trainings (time & place dependent) as well as finish online modules. Really keen to be active AREC member. Get fluent on changing to simplex coms...need a radio buddy to talk to!! (This is about becoming more fluent with my base station, and handheld dual bands). From my PRS group encourage those interested to do ham-cram, help them get up and running and become contributing members of the club, (myself included in the latter).

Steve ZL1SPR

My aim is to be able to send and receive 18 wpm CW.

Francois ZL4FJ

I would like to tune my HF antennas to be more resonant and be able to cover more bands, also to be more active on Ham.

Ted ZL1BQA

Mine is not a prediction but a perhaps like to achieve! I would like to get to the stage where I am comfortable having a chat on CW.

Steve ZL1TZP

For 2025 improve my CW receiving and activate a SOTA summit, or a POTA park in CW.

Peter ZL1PX

Achieve 25 wpm receive speed on CW (current speed is 18 wpm) and send out at least 50 CW radiograms over NZ Net.

Simon ZL3XL

My goals for 2025:

- 1. Achieve consistent voice contacts via ISS VHF/UHF crossband repeater.*
- 2. Upgrade my handheld unit to a DMR-capable one, then get into the DMR side of things.*
- 3. Although not strictly amateur radio, continue to develop and extend Meshtastic (operates over LoRa 915-928MHz, under the SRD GURL).*
- 4. Attend some club meetings and finally meet some other club members! Being a shift-worker makes this a challenge.*

Remote control and operation

Steve Doell ZL1TZP

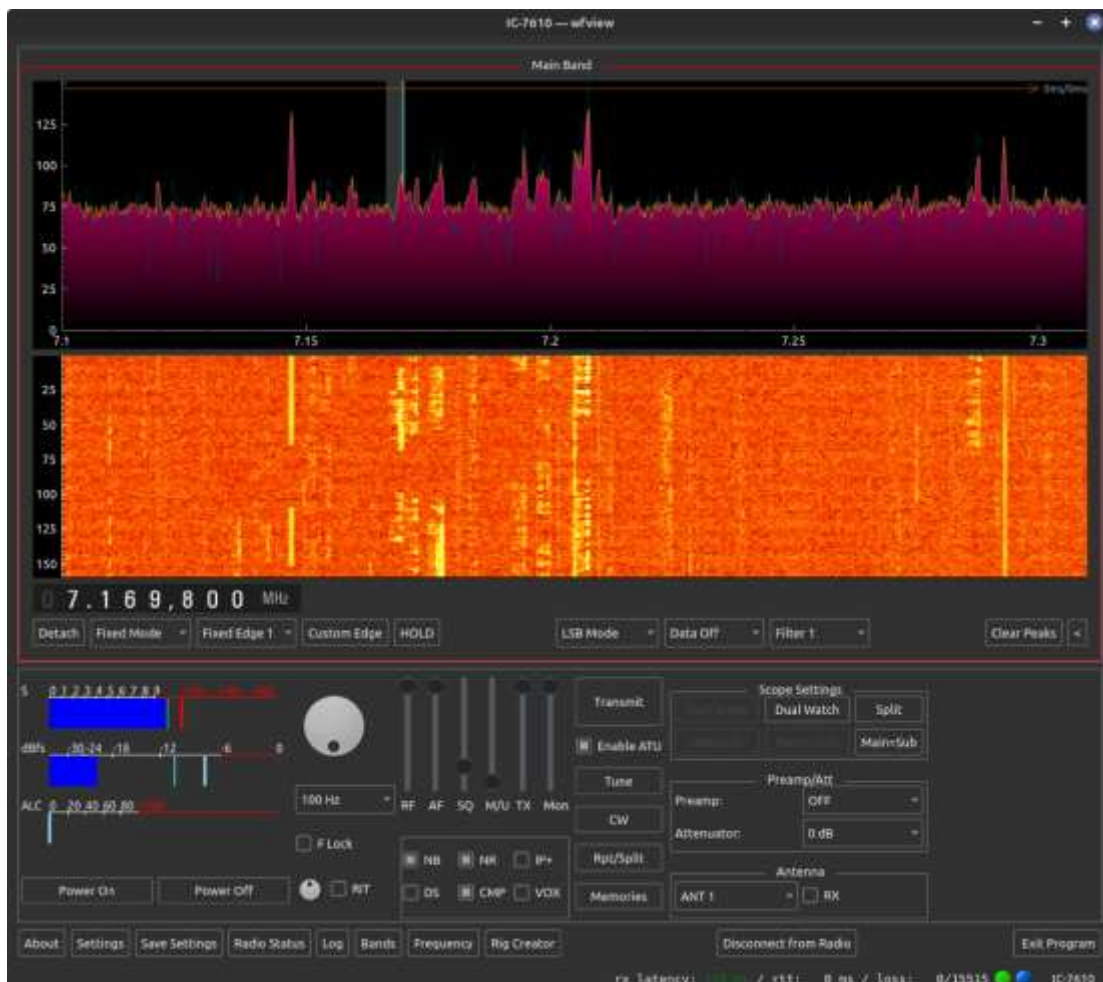
The first time I'd heard about remote control/operation was when Gavin (ZL1NUX) and Nigel (ZL2SEA) gave a talk at the club meeting in August 2018. At that time I thought it was interesting, but not something that I would use. Was I wrong about that! I have recently found remote control and operation of my rig to be easy and convenient, and have had a number of QSO's using my remote set up.

What got me thinking about remote control and operating again recently was a Break-in article (July/August 2024, page 18), As I read the article I started thinking that I may be able to remote into my rig at home from Japan. At the time, I was planning to visit Japan next year (2025), it may allow me to join the club net.

I downloaded the free software, both server and client, and installed them. I found that I was able to view the rig in the client and connect to it and control the rig. It worked! The thing that I wasn't keen on with this system is that others with the client software can also see my rig is online even though they couldn't control it (unless I gave them access).

As I have Icom rigs I decided to look into the Icom remote control software package. There are many views regarding it online and one thing that stood out was that a number of Hams had difficulty making it work, while there are others that had no difficulty. As the Icom software is commercial there is also a cost.

I then had a quick look at wfview, a free software package made for controlling Icom rigs. I had tried it a few years ago, but as my rig is an IC-7410, it wasn't fully supported, and I didn't have much success controlling the rig locally let alone remotely. As the name implies, (wfview) it seems to be aimed at newer Icom rigs with a waterfall (ie IC-7300 etc not an older rig like mine) I'm sure this software has matured a lot since I first tried it, and Hams are successfully using it.



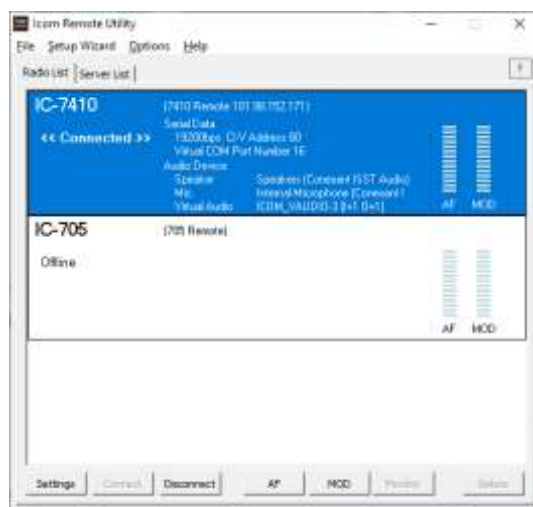
Screenshot of wfview

I ended up settling on the Icom package as it fully supports my IC-7410, and for that matter, all Icom multi-mode rigs with a USB or network connection, it is also updated to support new rigs as they are introduced.

The ICOM Solution

The software has 2 parts, the first part is 'Icom Remote Utilities' the networking part, and 'RS-BA1 Remote Control' the rig control and interface part. If your rig does not have a network connection (either WiFi or wired), as is the case with my IC-7410,

Icom Remote Utilities can be installed on a PC connected via USB to your rig, making your rig available on your home network. This is what I had to do. Otherwise a rig with a network connection (i.e. IC-7610, IC-705 etc.), only needs to be set up to connect to your home network. On the PC (client) you'd like to use to control and operate your rig, install the software (both parts) and set it up as per the instructions. To remotely operate your rig (once everything is set up correctly); Run 'Icom Remote Utilities' first, this connects your client PC to the rig you'd like to operate remotely.



Icom remote utility

Next start RS-BA1 (the rig control software), now you will have all the controls available to you as if you are sitting in front of your rig.



Icom RS-BA1

I have used this setup a number of times now to operate my rig remotely, and have had a number of successful QSO's. It works well. I have also joined the club 80m net using the remote from the beach a couple of times. Although once, I had an issue, the PC I had connected to the rig at home crashed, and required a reboot, so lost contact with the net. It is also possible to operate Digital modes remotely. To do this open 'Icom Remote Utilities', do not start 'RS-BA1', instead start the digital mode software you would normally use. I have successfully used 'wxjtx', 'Winlink' and 'VarAC' over the remote link. I'm confident that other digital modes software will work just as well. Later this year I plan to operate my remote setup from Japan and join the club 80m net while over there.

Remote Access by iPhone

Steve ZL1SPR

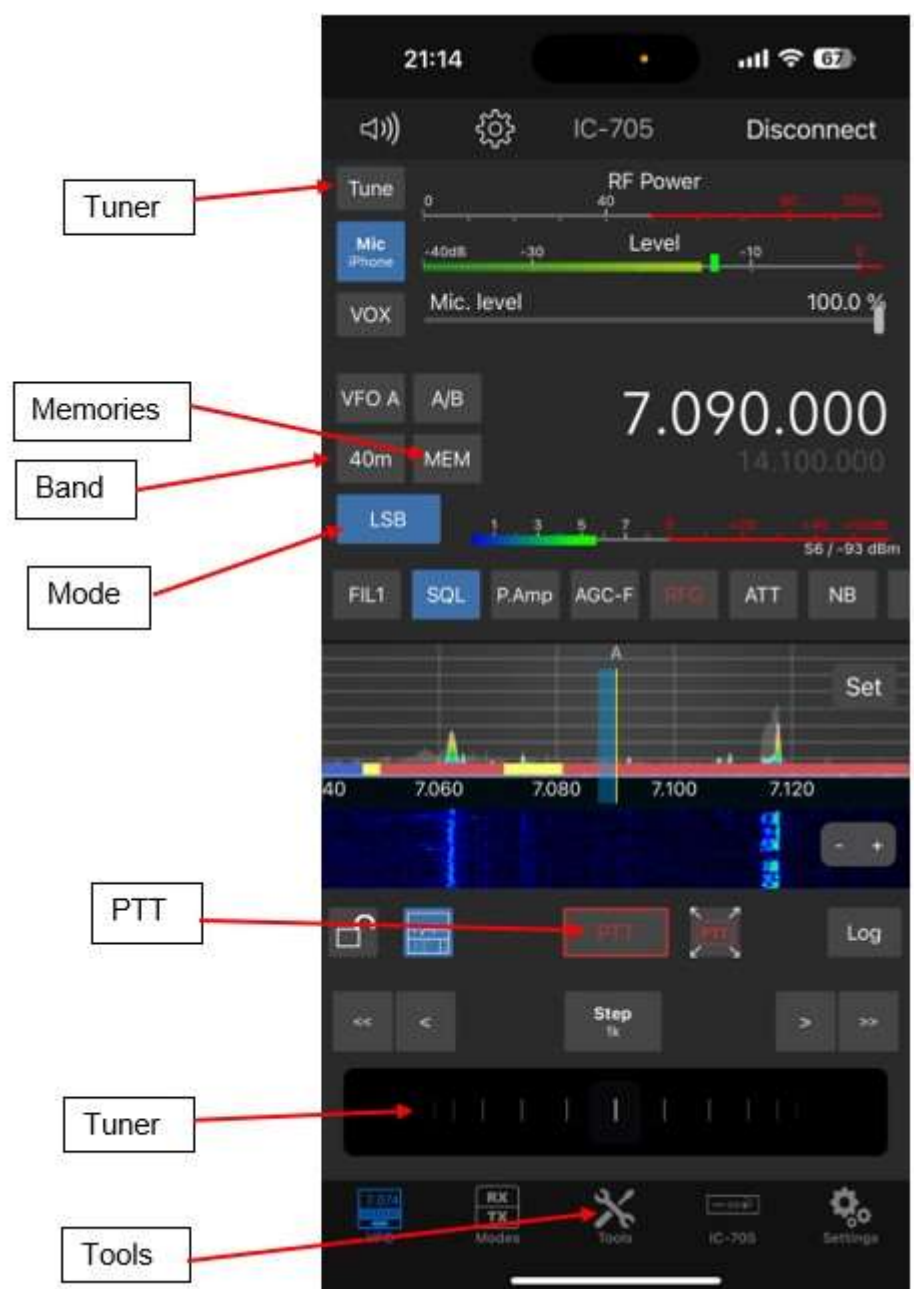
If you own an iPhone and one of the following Icom rigs: IC-705, IC-9700, IC-7610 or IC-R8600, then you can run the rig remotely from your iPhone. Your Radio needs to be connected to your Local network. For the IC-705 this will be a WiFi connection. For all other Radios, a LAN cable must be used. The App only requires iOS 16 or higher; there are no additional special memory or hardware requirements.

The app on the iPhone is SDR-Control Mobile, \$69.99 from the NZ Apple App Store, there is a Mac version for \$199.99 which will also work with the IC-7300.

The image below shows a connection to an IC-705, you have control of band, mode, adjust the frequency, etc. The waterfall shows signals. If you have a tuner attached, you can use the "Tune" button.

You can set the volume on the rig to zero when using the app so that it is not annoying someone near the rig.

The memories stored on the rig are also accessible.



There is a page of Tools that are available to use.



Undulations in History

Peter ZL1PX

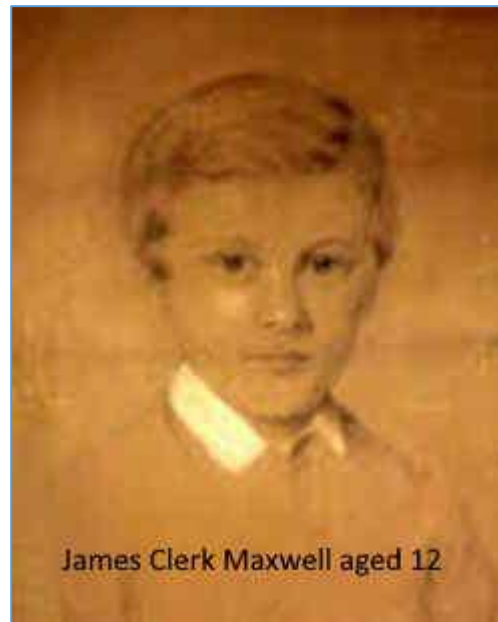
A man expressing a passion for scientific discovery penned these words in 1850...



Now my great plan... is to let nothing be wilfully left unexamined. Nothing is to be holy ground consecrated to Stationary Faith, whether positive or negative. All fallow land is to be ploughed up and a regular system of rotation followed. ...

This man was born at 14 India Street, Edinburgh in 1831, the son of comfortably off parents. He is today considered the third greatest physicist ever after Newton and Einstein. He was James Clerk Maxwell.

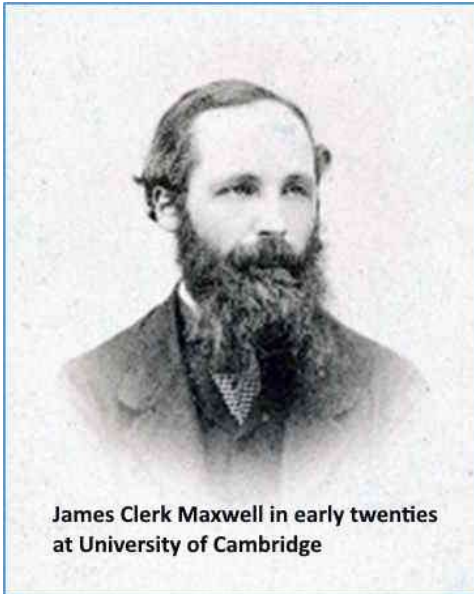
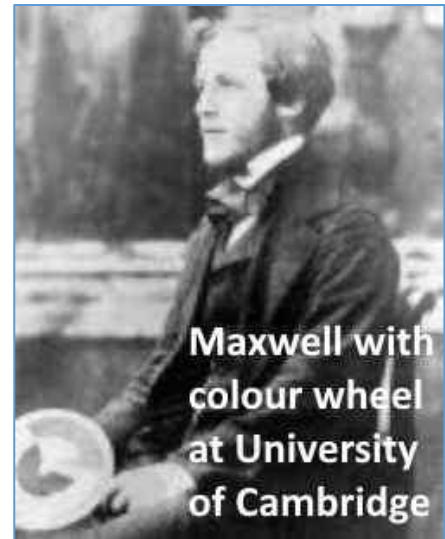
From a young age James showed an unquenchable curiosity. Everything that moved, shone or made a noise prompted a "show me how it does?" Noticing this, His mother Frances devoted herself to his early education. As a young child, he could recite long passages of John Milton and all 176 verses of the 119th Psalm. His mother recorded 'he has great work with doors, locks, keys, etc., and "show me how it does" is never out of his mouth. He also investigates the hidden course of streams and bell-wires, the way the water gets from the pond through the wall'...



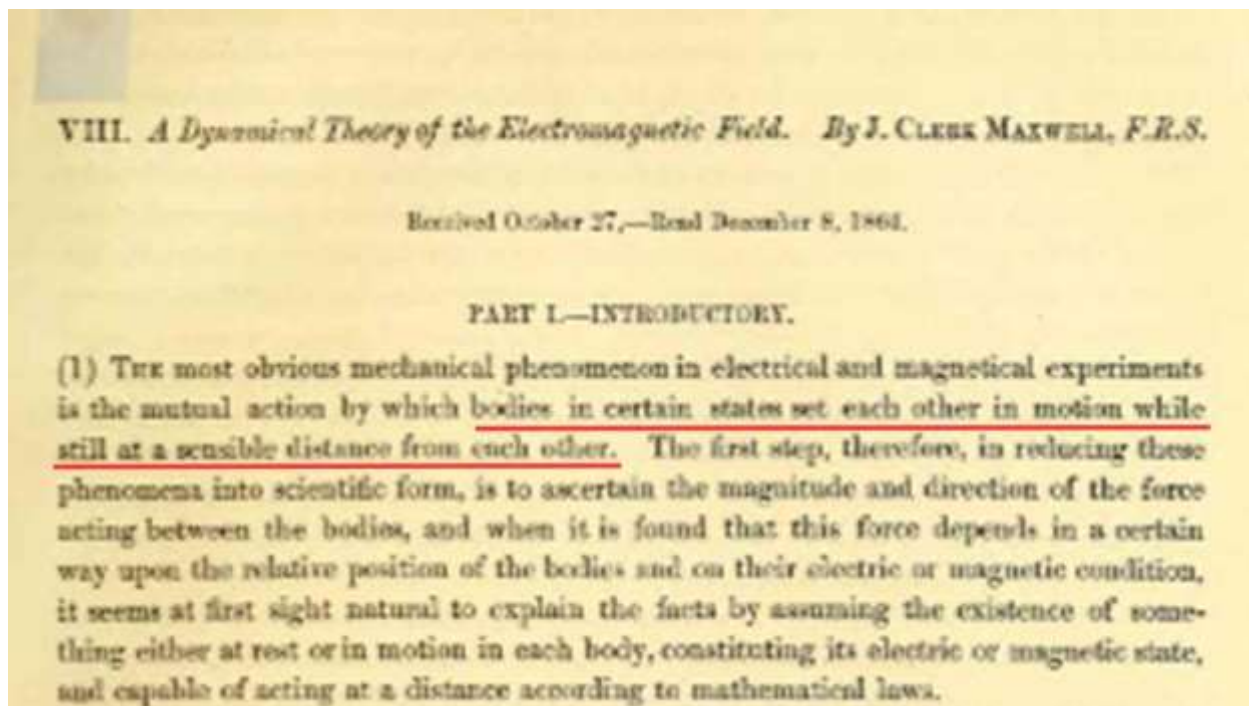
Sadly, Maxwell's mother died when he was eight. After some initial confusion, his father and Aunt took over his schooling until he turned 11 when he entered the prestigious Edinburgh Academy. At first he did not fit well into school and was nicknamed 'Dafty' by the other boys. He did make friends however and discovered a fascination for geometry. Within the next two years he won the school mathematical prize and first prize in English and poetry.

Maxwell wrote his first scientific paper while still at the Edinburgh Academy: *A Description of Ellipses, Cartesian Ovals, and Related Curves with more than Two Foci*. This was presented to the Royal Society of Edinburgh by his tutor James Forbes as Maxwell was deemed too young to present the work himself. In 1847, he sent two further papers to the society, 'On the Equilibrium of Elastic Solids' and 'Rolling Curves'. As before, he was considered too young to attend the Royal Society so his paper on Rolling Curves was presented by a Cambridge tutor Professor Philip Kelland.

Maxwell entered University Of Cambridge in 1850. He studied mathematics under William Hopkins whose tutoring success had earned him the title of 'Senior Wrangler Maker'. Maxwell scored second highest in the final examinations earning himself the title of 'Second Wrangler'. It was at Cambridge he further developed his interest in colour, something he had started at Edinburgh Academy under Forbes. With the coloured spinning tops invented by Forbes, Maxwell was able to demonstrate that white light would result from a mixture of red, green, and blue light. His paper "Experiments on Colour" laid out the principles of colour combination and was presented to the Royal Society of Edinburgh in March 1855. Maxwell was this time able to present the paper himself.



While lecturing at University of Cambridge in the early 1850s, Maxwell calculated the speed of electromagnetic fields to be approximately the same as the speed of light, around 300 thousand kilometres per second. He considered this to be more than a coincidence and suggested there must be 'undulations' consisting of both light and electromagnetic fields travelling through space which were essentially the same substance governed by the same laws. In 1865, he published 'A Dynamical Theory of the Electromagnetic Field' setting out to explain how 'bodies in certain states set each other in motion while still at a sensible distance from each other'.

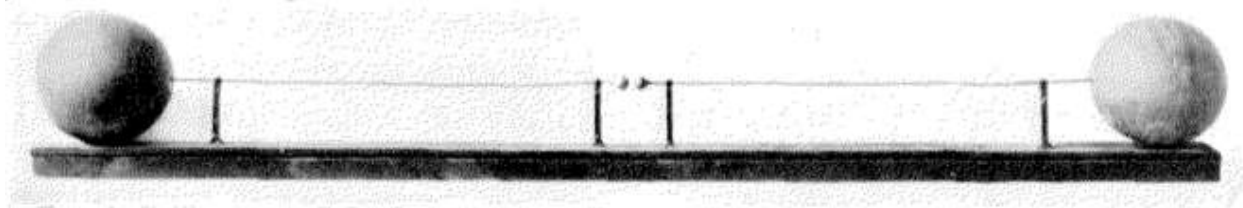


Opening page of Maxwell's 'Dynamical Theory...'

Probably the most important idea of Maxwell's Dynamical Theory was that light was also an electromagnetic wave. In this and later papers, he created his 'Maxwell Field Equations' – four equations which explained how these waves behaved. He used these equations to predict that the polarization and depolarization of an insulator would produce a magnetic field which in turn would create an electromagnetic wave.

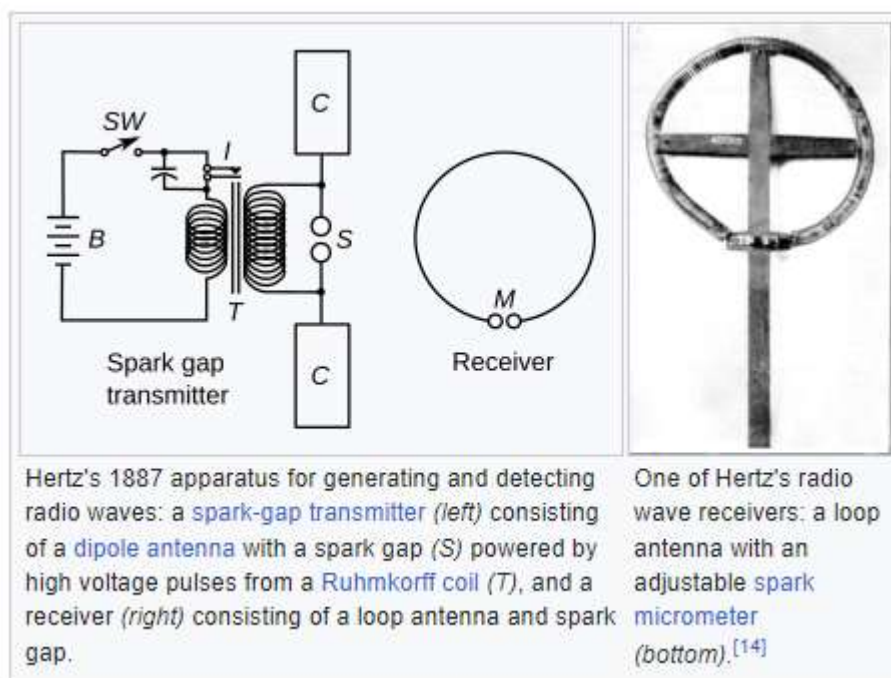


Only a few years later, between 1886 and 1889, Professor Heinrich Hertz of Karlsruhe University experimented with a pair of Reis spirals. These were shaped like a coil. He noticed that when he discharged a Leyden Jar into one of these coils the second coil showed a small spark. Hertz knew of Maxwell's work and decided to prove or disprove the electromagnetic theory. He fed pulses of high voltage electricity into a dipole resonator and observed sparks in a circular shaped antenna 12 meters away. Hertz was able to measure the speed of the wave and confirmed it was travelling at the speed of light. Maxwell's theory was correct. Much later, in recognition of his work at proving Maxwell correct, Hertz's surname became the standard for 'cycles per second' when describing the frequency of a radio signal.



Hertz's loaded dipole resonator (antenna)

Hertz's first radio transmitter used a capacitance loaded dipole resonator consisting of a pair of one meter copper wires with a 7.5 mm spark gap between them, ending in 30 cm zinc spheres. When an induction coil applied a high voltage between the two sides, sparks across the spark gap created standing waves of radio frequency current in the wires, which radiated radio waves. The frequency of the waves was roughly 50 MHz, about that used in modern television transmitters – (Taken from Wikipedia)



To power his antenna, Hertz fed in electrical pulses from a direct current battery source. See battery B. When SW is held down, the circuit is closed to make a magnetic field pull an iron contact bar downwards - which opens the circuit. When this happens, a spring action pulls the iron contact upward and the circuit is closed again. This cycle repeats to make the see-saw in voltage and current that create electromagnetic waves. C and S refer to the capacitance loaded dipole and spark gap pictured above. (Taken from Wikipedia)

Hertz's 1887 apparatus for generating and detecting radio waves: a **spark-gap transmitter** (left) consisting of a **dipole antenna** with a spark gap (S) powered by high voltage pulses from a **Ruhmkorff coil** (T), and a receiver (right) consisting of a loop antenna and spark gap.

One of Hertz's radio wave receivers: a loop antenna with an adjustable **spark micrometer** (bottom).^[14]

Neither James Clerk Maxwell nor Heinrich Hertz lived long enough to see radio in use. When asked what use was an electromagnetic wave, Hertz is said to have replied, 'It's no use whatsoever, but they are there'.

Maxwell died in 1879 of abdominal cancer, aged just 48 years. Hertz died from complications after surgery in 1894 at the age of 36. Guglielmo Marconi first worked on radio in 1894 but his early radio signals did not travel further than half a mile. It wasn't until late 1895 that he was able to achieve much longer distances by raising the antenna and grounding the transmitter.