THE MUSE

----------For APRIL 2024----------

The newsletter of the MUSICK POINT RADIO GROUP (INC.) NZART BRANCH 86
Incorporating **The Society for the Preservation of Amplitude Modulation (SPAM)**
and **Green Radios On The Air (GROTA) News.**

Musick Point Memorial Radio Station, Bucklands Beach, Auckland. Call Sign-ZL1ZLD.
BRANCH 86 *NZART* NET- TUESDAYS, 7.30PM, 145.775 MHz, Musick Point Repeater. All welcome!
SPAM Remote Receiver - http://spamnz.zapto.org:8901/
Website- https://musickpointradio.org Webmaster-Neil ZL1NZ.
SPAM A.M. (ZL6AM or ZL1ZLD) Nets- Wednesdays 11 AM, Fridays 8.30PM, on 3.850MHz, and sometimes on 7.125MHz after the 80 meter net.
Editor- Martyn, ZL3CK.
Meeting- Second Sunday of the Month (Except May-Third Sunday, to avoid Mothers' Day)
NEXT MEETING- ANNUAL GENERAL MEETING SUNDAY, APRIL 14th at 1pm. Coffee and tea provided!
AGM AGENDA ATTACHED.

Original Art Work presented to the MPRG by Ramon Robertson, Sculptor and artist.

From the Chair

As I write this, we are roaring towards the Easter weekend with the brakes off, downhill and with the wind at our backs. The good news is that the following Sunday (Saturday night?) we will mess with all our time 'keeping' devices and, in theory, have an extra hour available for some extra sleep.
Then, it should be of no surprise to any of you that the following Sunday, (yes, 14th April), is our Annual General Meeting, where we will have the opportunity to elect a new Chairman, Treasurer and Secretary who will need to try and hold the place together for another year. The AGM is not usually a long drawn out affair, and it is a good place to raise ideas for club activities or projects. With the cooler and wetter months approaching, we need to have a few indoor activities prepared to keep up the interest.
Give it some thought and send in a nomination for a position, or go the whole hog and nominate a whole new executive, if that is what you want. Be sure to attend the AGM. Then you could always make the following claim:

> I didn't vote ***for*** you, I voted to stop your opponent from gaining power.

The last few Sundays have seen some good attendances at the station and, I think that I can safely suggest that most of us have learned something whilst being involved in the "messing around with antennas and things" outdoor activities. Harry, ZL1BK has been at the centre of these experiences and impresses me every time by bringing out some homebrew gadget or unusual tool which is used to help measure some thing or, at least infer some important information using the measurements made with the gadget.

> I went to the toy store and asked the assistant where the Schwarznegger dolls are and he replied, "Aisle B, back."

A good idea of the things that go on at the station can be found in our new website which is full of interesting goings on, with pictures too, so that you can see us having fun. The address of the website is: https://mprg.zlham.net.nz

Go on, have a look, you might even get the urge to come out and take part. Yes, you too could be with us having fun doing amateur radio hobby type things for a couple of hours – once, or even twice a week, if you wish to come along on a Sunday and a Wednesday as well.

I often take a look at the website to see what I have been missing on a Wednesday. Unfortunately, I have to work, so miss out on a few things and find that I can at least catch up on the fun and games that I have missed. Not that I don't have enough fun and games at work, but that is different. A funny "meme" (whatever that means) I saw recently went along the lines: "Whoever said that there is no such thing as a stupid question really needs to come to my workplace for a day…". That definitely sums up a good percentage of my working day experiences. Back to radio fun only to note that I see, in the latest posting on the site, that we have a bit of work to do on my favourite "open line feeder" dipole. Oh well, another afternoon of fun ahead of us.

> They call it a selfie because narcissist is too hard for most people to spell.

I think that will do for another month, so I hope you all have an enjoyable break and a happy Easter. I will be missing, on family duties, on Easter Sunday but it is important to get the clan together asoften as possible, and Easter is a good opportunity for a good catch-up and some good food along with all the gossip you can shake a stick at.
Happy Easter; take care out there, and see you at the AGM on the 14th April.

Until next month:
73, and call CQ
David, ZL1DRV

MPRG News-

Ramon Robertson first made contact with the late Ann Walker with a proposal to use the Musick Point Radio Station building as the subject of a 'functional sculpture', i.e. something representing the building's "Art Deco" form, which could also act as a radio receiver to receive our short wave transmissions. Ann sent him the plans of the building, and last year he made contact with the present group and came for a couple of visits to see what it looked like inside. However, although the sculpture idea didn't progress past a preliminary stage, Ramon has produced this evocative collage reflecting the colours and shapes of the station. He used a paint tray to form the various textured components of the artwork, hence his title for it.

He gives the following explanation-

"Paint Tray Interior" - Ramon Robertson -March 2024

Paint tray interior is part of a research study on a particular heritage listed building in East Auckland. The building is the Musick Point Memorial Radio Station, a little known functionalist building built in 1942. It is still used today as an amateur radio station and has managed to retain its initial purpose as a radio station for 80 years. This drawing uses selective elements gathered during research and site visits and is descriptive of the building's architectural plans, interior colour schemes, and built functions. The drawing is also a functioning radio antenna, with the aim of connecting to the station's local shortwave transmissions from my home. This work aims to subtly draw attention to a building which is often thought by locals to be an abandoned site.

Musick Point Radio Station Maintenance-

Dave ZL1DL up top, **Graham ZL1TOF** and **Mark ZL1MRT** acting as anchor blocks for the security light replacement. Four are now done, 2 more to do. And yes, ZL1DL was correctly harnessed.

It’s a long way up there Dave…

Hooray! They go! Maurice ZL1MPU adjusting the aim. Note the newly sandblasted and rustproofed light cages.

Ampitude Modulating at Musick Point

Newly-installed 941 Receiver (Right hand panel) at Musick Point.

These classic Collier and Beale receivers are multiplying! The "vintage" desk at Musick Point has been upgraded with a third, beautifully restored, C&B 941 recently obtained from the estate of the late Phil McGechie, a well-respected member of the Vintage radio Society.

We were alerted to the sale by **Bruce ZL1BLB,** a regular on our AM nets. The C&B 941 was a 1941 production of a top-grade short wave receiver, intended mainly for the NZPO. It was a locally designed and made copy of the more famous HRO. During the war it was imperative that minimal use of imported components were used, and the result is an excellent receiver with some improvements over the HRO. Our 3 examples are different in that the 80 meter set (left side) has a bandspread coil box and is actually far more stable than the HRO equivalent (the editor has one at home). The 941's have no crystal filter like the HRO, but a variable I.F. bandpass (of limited effect), no audio gain control or AGC, but independent RF and IF gain controls. The grey set is on 40 meters, but has no bandspread, so the whole 40 Meter amateur band takes up only 8 small divisions on the tuning knob. This set has (unusually for the 941) an AGC/or BFO switch, similar to the HRO, and an audio control! This Rx. is paired with the C & B modified Shelly Bay beacon transmitter downstairs, crystal locked on 7.120 MHz, and produces a modest 80 watts to a folded dipole aerial (but this now needs repair-again.)

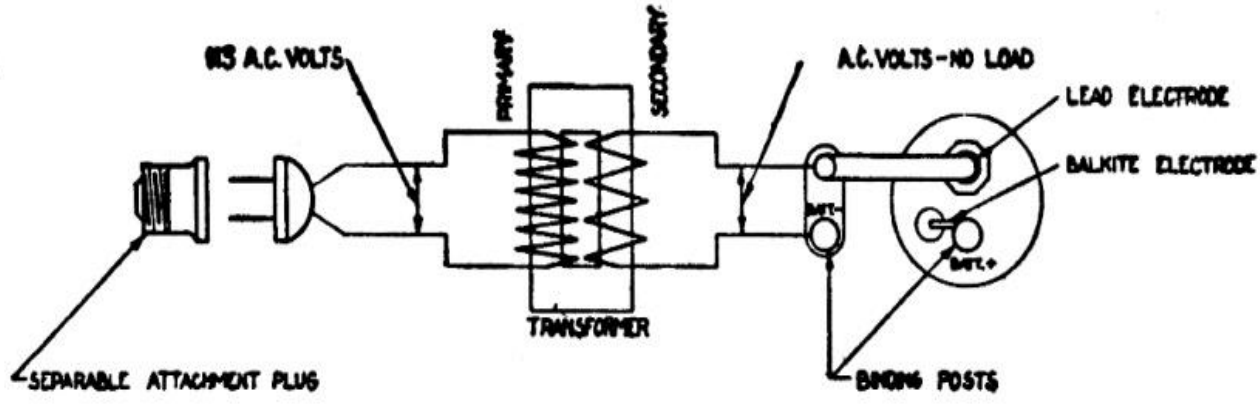
Graham ZL1TOF designed a very neat logic unit for the T/R switching which was less than satisfactory, done with timed relays (see a previous Museletter). The latest '941 has yet to be powered up, but there's little doubt it will be in top condition. Anyone for 20 meter AM?

Graham ZL1TOF brought this rather frightening looking device to the station recently, and so here's the story….

The Fansteel Inc. Balkite Model K Trickle Charger

Graham Baker

I got this charger a long time ago and could not find out anything about it. It turned up recently and I now have more time and better tools to delve into how it works. I quickly found MOTAT had one, on display? Then it got much more difficult until I found the patent which details what is in it. The patent text says, "The rectifying element of the present invention consists of an anode of lead, and a cathode of tantalum in an electrolyte, preferably of dilute acid, as sulphuric acid. Sulphuric acid of 1.25 specific gravity has been found satisfactory. It has been found that tantalum has the

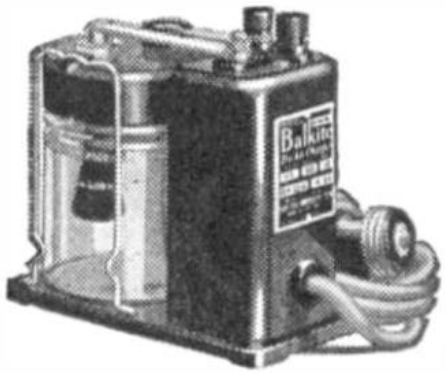


Wiring Diagram, Balkite Model K, Trickle Charger

property of permitting current to flow from the electrolyte to the tantalum electrode but preventing the flow of electricity in the reverse direction."
The circuit is a simple step-down transformer with the primary is wired to a light socket. The secondary in series with the electrolytic rectifier and the battery to be charged. A 230 volt model was made as well. I don't like the chances the metal case would pass today's double insulation requirements.

The Company

At the age of 16 Carl A. Pfanstiehl met his future partner, James M. Troxel. They launched the Pfanstiehl Electrical Laboratories in January 1907. The company had a good reputation in the automotive field, it produced various parts for that industry, including magnetos, master vibrators, starter coils, and transformer coils. Especially important to the company was its development of automotive contact discs, made with tungsten, at the time a new metal. After the war they changed their name to Fansteel Inc.



Balkite Trickle Charger

MODEL K. For those who require a charger of limited capacity only. Can be left on continuous or trickle charge thus automatically keeping the battery at full power. Converts the "A" battery into a light socket "A" power supply. Charging rate about .5 ampere. Over 300,000 in use. Price $10. West of Rockies $10.50. (In Canada $15.)

In 1916 Dr. Clarence Balke became the research director at Fansteel. For years Fansteel conducted research on tantalum, the rare metal in which Clarence Balke had focused much of his energy as a professor. One commercial result was the company's Balkite Tantalum Rectifier, which in the early 1920s became hugely popular, though demand for the product would not last long. In 1923 Fansteel was manufacturing rectifiers and "B" power units in the millions and establishing distribution outlets throughout the country and around the world. But in 1927 the rectifier was replaced by the AC (alternating current) tube, and Fansteel found itself in a downhill slide. They then moved into radio receiver manufacture under the Balkeit brand.

The company continued with tungsten and molybdenum production for radio tubes. In 1930 Fansteel began to market carbide tools and dies that the company had developed from tantalum and tungsten carbides. Today Fansteel is a large speciality metals and parts manufacturer.

The Technology

In 1857 by the German physicist and chemist Johann Heinrich Buff was first to observe the unidirectional current flow through a cell having aluminium as an electrode. Aluminium (Al), tantalum (Ta), niobium (Nb), manganese (Mn), titanium (Ti), zirconium (Zr), zinc (Zn), hafnium (Hf), tungsten (W) &, cadmium (Cd), also known as "valve metals", can form an oxide layer in an electrochemical cell and exhibit unidirectional current flow. E. Wilson in 1898 (1) detailed a range of experiments with aluminium and other materials in various electrolytes and recorded the unidirectional current flow after forming. Until this time generators made direct current with a commutator, a mechanical switch. Tantalum is found combined with niobium and the first relatively pure ductile metal was produced in 1903.

Wireless telegraph urged the search for a better detector to replace the coherer. Many were developed (2) including a fine point, 10 um diameter platinum "cats whisker", with sulphuric acid, in

a small lead cup. These were the most sensitive. The operator could hear signals at 600 pW (-62 dBm) without any amplification!

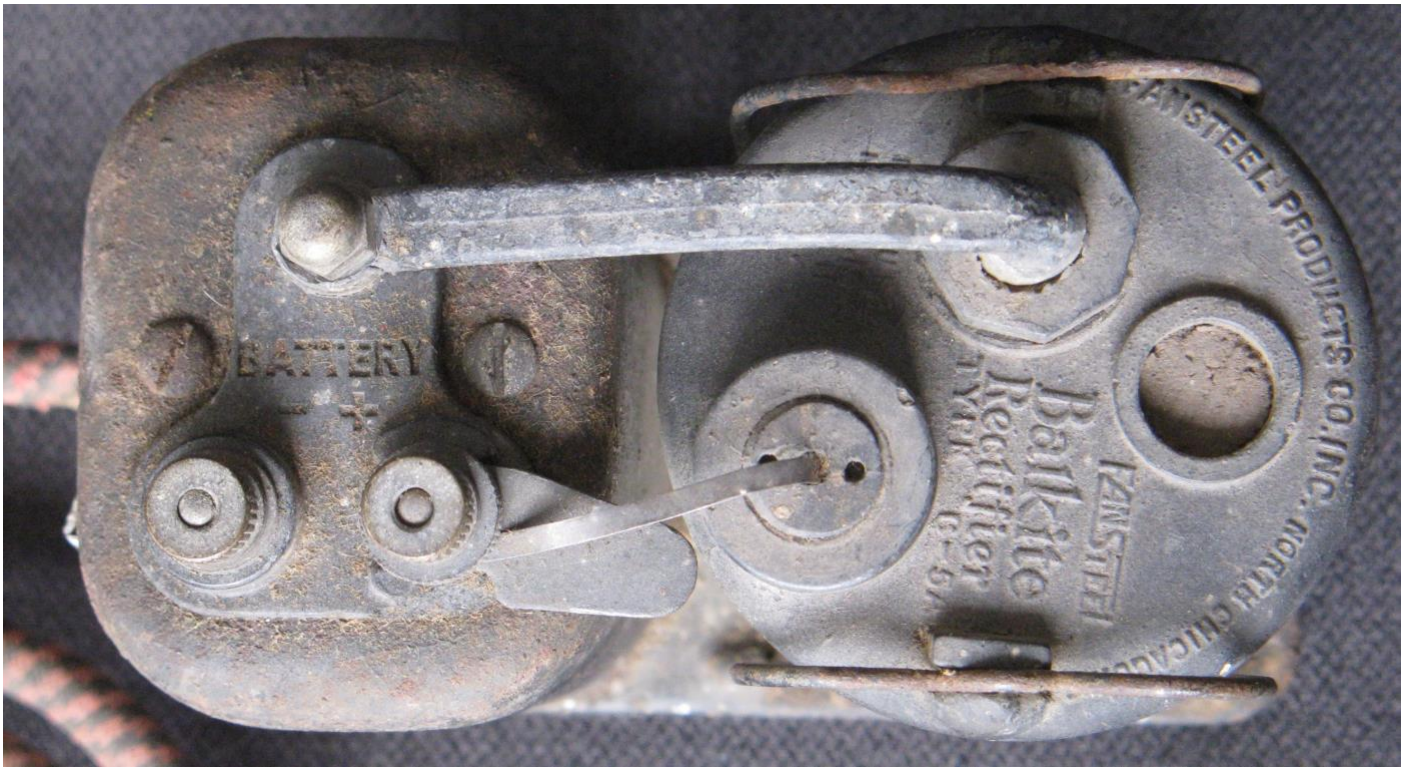
In the August 1907 issue of Scientific America there is an article (3) which describes an aluminium carbon cell with sodium phosphate made slightly acid with sulphuric acid as the electrolyte. The double rectifier and centre tapped transformer were patented, so, the author suggested the full wave bridge version. Arrows were shown on the rectifier circuits to indicate the current flow so they resembled the diode symbol we use today. Cooling was arranged with water in glass tubing worms through the electrolyte.

In the early 1920's amateurs used "slop jars" for their CW and phone transmitters.(4) These were constructed with lead and aluminium plates in borax (sodium borate, $Na_2B_4O_7$ $H_{20}O_{10}$) solution. The Peak Inverse Voltage (PIV) for one cell was about 20 volts. Insulating the aluminium electrode at the surface of the electrolyte with wax or an oil cover improved the PIV to about 140 volts. The forward voltage drop was about 5 volts. The current rating is about 50 mA per cm^2 of aluminium (anode).

When a valve metal is used as an anode in an electrolytic cell with the anode positive, leakage current at the weak spot causes oxygen to be evolved and combined with the metal to form more oxide. More voltage, more leakage current, more oxide thickness reducing the leakage current. The same as reforming electrolytic capacitors. A 1974 paper (5) suggests the oxide layer is doped by hydrogen ions from the electrolyte and the operation was by a Schottky p-n junction between the oxide and the metal.

References:

1) "Aluminium as an Electrode in Cells for Direct and Alternating Currents" E.Wilson 1898
2) "Early radio wave detectors", Vivian J. Phillips, 1980 ISBN 0-906048-24-9 p71.
3) "A Home-Made Alternating-Current Rectifier" Scientific America, August 1907 p134ff.
4) "An Electrolytic Rectifier for C.W." P.J.Furlong, 1FF, QST, Feburary 1921 p17ff.
5) "Electrolytic Rectification and Cathode Charge Reversibility of Some Valve Metals", C. K. Dyer, 1974



The Maker's Plate on the Fansteel Charger. No "CE" mark here!

SPAM News

For a comprehensive collection of ZC1 Information, this link will get you to the old ZC1 Club website. It's now found in the National Library archives-
https://ndhadeliver.natlib.govt.nz/webarchive/20211129140437/http://www.zc1-radioclub.org.nz/

"Flying the Beams" is an excellent treatise on the LF DF A/N or Adcock system in widespread use from 1930-1950's. Musick Point used the 'reverse' system to DF on an aircraft (or submarine- yes they did that) , but the A/N system enabled the first blind flying to be achieved in 1928.

https://flyingthebeams.com/

NZART Annual Conference on Sunday, June 2nd ZL3CK will be away overseas, and Kelvin ZL3KB likewise. The Conference organiser **Ian ZL3TAO** has arranged a "SPAM" slot on the Sunday as per previous years. A "GROTA" working station will be in operation. If you are able to contribute, email Ian on- ian@macpherson.gen.nz or the editor, martyn.seay@gmail.com thank you. ZL3CK has the SPAM minutes and club records, and the bank account is in safe keeping under ZL1FS and ZL3CK.

GROTA News with Kelvin ZL3KB-

GROTA trials February 2024. An inaugural WOTA GROTA.
In the past our groundwave trials have predictably shown great performance when crossing sea water, (maybe called “seawave”?). To this end, we wondered how things would shape up if the radio was setup at the end of a pier or wharf? Hence, we created a new sport, WOTA (Wharfs on the Air).
Our team chose wharfs on either side of the port hills giving the signals an extra uphill struggle. However, a few problems showed up early; firstly, piers and wharfs are very busy on Sundays. Secondly, the signals were feeling “Sunday-afternoon-ish” and didn’t want to climb hills that day.
I set up atop Mt Pleasant with a 48 set to be a coordinator with good coverage to both sides of the hills. Noel, with newbie Leo ZL3NotYet, was operating a 48 set on the harbour side at Rapaki Wharf but heard very few stations except me. Des, also with 48 set, initially setup on a lake wharf in Ferrymead, but the duck poo and Radio Ferrymead QRM finally “got to him”, and so he moved to the top of the port hills, as did Noel and Leo. Bruce and Murray operated a ZC1 on Southshore, but were banished from the wharf by public occupation. Ray with his 48 set and ZC1 setup on the other side of the harbour, but had technical issues with the radios.
Our stations that day on high ground had some great comms with Auckland based Martyn at ZL1ZLD, we were hearing him direct while he was hearing us by the Gore SDR, so our 48 set 20mW EIRP was ‘sky-waving” quite well.
So, in the end, none of our stations ended up on wharfs, but in the pub de-brief it was all voted a great day never the less. Thanks again to the team **Ray ZL3RAM, Des ZL3AK, Noel ZL4OW,** Leo (signed up to HamCram), **Bruce ZL3TFM, Murray ZL3TFM** and Martyn at **ZL1ZLD.**

Kelvin ZL3KB

Kelvin ZL3KB tuning up the faithful ’48. Not sure about that period 1943 earplug?

Leo, now a brand new **ZL3LEO,** is the latest GROTA victim!

Noel ZL4OW in action with the ’48 on top of Mt Pleasant- but not much was heard!

Musick Point Radio Group (Inc.)

Minutes of General Meeting held at the Musick Memorial Radio Station on 10 March 2024.

Meeting started at 1300.

Present-7 members as per attendance book.

Apology- Maurice ZL1MPU

Minutes for February- Accept as distributed- Moved ZL1DL
Seconded ZL1MRT Carried.

Business arising- Next meeting is AGM. Members need to think about officers and nominations.

Finance- ZL1DL- We are still $500 approx. ahead of last year but expect increased insurance premium due in July.
Current A/C $2248.50 Serious Saver 7997.61 Repeater $471.71 Total funds $10,717.82
Noted ZL1AQS has paid a sub.
Suggestion re. establishing a term deposit discussed, ZL1DL to investigate options.

Moved- ZL1DRV.
Seconded- ZL1DL Carried.

General Business-

ZL1DL presented the "Winlink" HF base station proposal as per correspondence from Nigel ZL2SEA. This was subject of extensive discussion. Requirements include multiple dedicated HF radios and associated aerials, operating 24/7 and associated UPS. Difficulties for MP include lack of anywhere to put said additional aerials. Dennis ZL1UET (Technical officer) has advised likely RFI with existing commercial and amateur services already on site. Historically, there were problems with a packet radio station, the frequencies proposed are the same, and the packet set up had to be removed due to interference with one of the cell phone facilities.

Notwithstanding, the meeting expressed a keen desire to further MPRG's capabilities as an emergency communications resource, and the proposal will continue to be evaluated. This includes investigating the present and future place of AREC in the overall Auckland emergency comms sector. Rob ZL4ROB has the most involvement with AREC in the group and will look into this further.

Meeting finished at 1405 Hrs.

Minutes taken by ZL3CK.

Musick Point Radio Group Inc. Branch 86 NZART
Agenda for Annual General Meeting to be held at Musick Memorial Radio Station on April 14th after the General Meeting.

Welcome to Visitors. Present: Per attendance book – Quorum present? Apologies:

Minutes of previous AGM 21 May 2023 - As circulated

Errors & Omissions / Matters arising:

Finance

- Annual Accounts: Treasurer's report
- Set annual cub member subscription for the current year

Reports

Chairman, Secretary, Newsletter Editor, Webmaster

Election of Officers

Nominations - No prior nominations have been received.

Position	*Proposed*	*Proposed by*	*Seconded by*	*In Favour*
Chairman				
Secretary				
Treasurer				
Newsletter editor				
Webmaster				

General Business

- Open to floor

Musick Point Radio Group Inc. Branch 86 NZART
Agenda for General Meeting to be held at Musick Memorial Radio Station before the AGM.
on April 14th 2024.

Welcome to Visitors. Present: Per attendance book – Quorum present? Apologies:

Minutes of previous General Meeting 9th March 2024 - As circulated

Errors & Omissions / Matters arising:

New Member/s-

Mark Titchener ZL1MRT/4CDE Proposer-

Seconder-

Any other new members-

Finance

- Accounts: Treasurer's report

General Business

- Open to floor

Musick Point Radio Group Inc. Branch 86 NZART
Minutes for Annual General Meeting held at Musick Memorial Radio Station
on May 21 2023 13:44

Quorum present with names as per attendance book. Apologies received: Keven ZL1KFM, Ethan ZL1EK
Minutes of previous AGM 10 Apr 2022: No errors, omissions or matters arising were tabled. Minutes accepted as circulated; proposed to accept by Jason ZL2JDH, seconded by David ZL1DRV. Accepted by all present.

Finance
The club accounts for the year ending 31 March 2023 have been reviewed; the reviewer is satisfied that the accounts presented represent a true record of income and expenditure.
The accounts summary was provided to the meeting. Expenditure exceeded income for the year by $438.38 and the club held $10,198.87 in bank accounts as of the 31/3/23.

Annual Subscription Setting: For a number of years, the subscription has been held at $40. After discussion on the merits of raising or holding the amount, it was decided to continue with $40 for the annual subscription. Many members add a donation to their annual contribution, and it was thought this was preferable to raising the sub. Martyn ZL3CK proposed the annual subscription be maintained at $40. Graham ZL1TOF seconded the proposal. The proposal passed by show of hands.

Reports from the Chairman, Secretary/Treasurer, Newsletter Editor and Webmaster were presented.

Election of Officers No prior nominations were received. Dave ZL1DL has been holding both Secretary and Treasurer positions; Martyn ZL3CK volunteered to be nominated for the secretary role. All other position holders agreed to continue in the respective portfolios – no other nominations were received. Elected and other positions were confirmed as:

Position	*Nominee*	*Nominated by*	*Seconded by*	*In Favour*
Chairman	David ZL1DRV	Dave ZL1DL	Graham ZL1TOF	All
Secretary	Martin ZL3CK	David ZL1DRV	Rick ZL1WOT	All
Treasurer	Dave ZL1DL	David ZL1DRV	Martyn ZL3CK	All
Newsletter editor	Martyn ZL3CK	N/A	N/A	All
Webmaster	Neil ZL1NZ	N/A	N/A	All

General Business
The issue with monthly meetings often having to be deferred owing to insufficient members attending to reach the minimum numbers required for a quorum was raised. The existing requirement for 8 members (including at least two office holders) to make a quorum was, in general, seen to be difficult to achieve from a total membership of approximately 25. Against reducing the numbers required to make a quorum was the potential risk of a small group taking control. After discussion, Martyn ZL3CK put a motion to make a change to the club constitution:
"I move that paragraphs 6 (d) and 8 (a) of the club constitution be updated to provide for a quorum of 6 members (4 financial members plus 2 elected officers), from the existing quorum of 8 members (6 financial members plus 2 elected officers)". The motion was seconded by Graham ZL1TOF. The result of the vote was 7 for and 1 against. The motion was carried.

Meeting closed at 14:45

Clock Report 2024

Graham ZL1TOF

The clock is on track to be about 2 seconds late by the winter time adjustment on 7 April. The clock looses about 4 seconds over summer and gains about 6 seconds over winter.

During the year there was one problem that exposed an issue with lubrication in the dials. Last September the clock was advanced and set for summer time. All the dials were checked that they showed the correct time. The following Sunday I noticed the meeting room dial was 5 ½ minutes late. I checked the other dials, all on time.

I took the faulty dial out of service and found the minute hand was touching the glass in the 6 O'clock area. A big build up of dirt on the back-stop click and pawl was the most likely reason the dial lost 11 pulses. After cleaning, lubricating and adjusting the minute hand the dial was put back into service. Since then It has performed without loosing a step. More details and a photo in THE MUSE for December 2023 page 8, https://museletters.zlham.net.nz/media/MPRG%20SPAM%20NL%20DEC23.pdf

Over the coming winter I will service the dials, one at a time, to reduce the chance of failure for the next 40 years.

Interior of a 1935 Gent Master Clock- http://www.hvtesla.com/masters/index.html