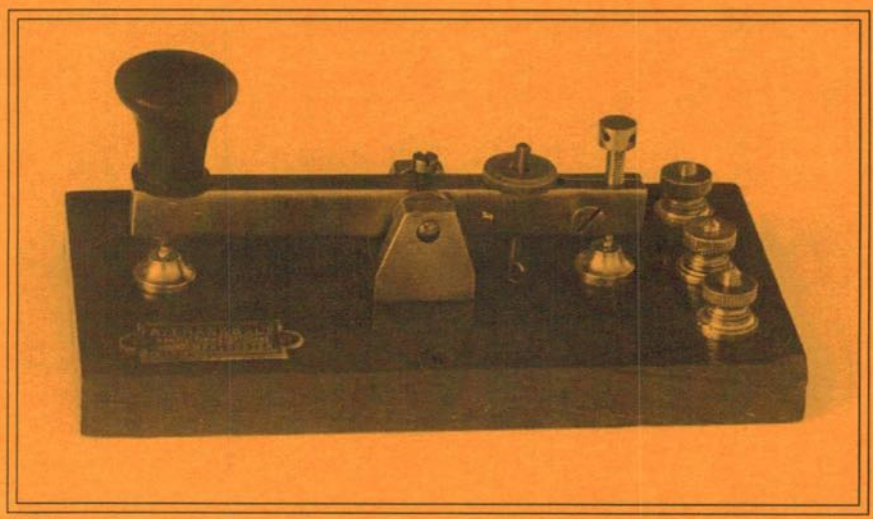
Flying the flag for Morse

Number 50 – February 1997

Morsum Magnificum

50

The Morse Magazine



Brass Key by A. Franks Ltd, Manchester

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Flying the flag for Morse

Morsum Magnificat

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MORSUM MAGNIFICAT was first published as a quarterly magazine in Holland, in 1983, by the late Rinus Hellemons PA0BFN. Now published six times a year in Britain, it aims to provide international coverage of all aspects of Morse telegraphy, past present and future. MORSUM MAGNIFICAT is for all Morse enthusiasts, amateur or professional, active or retired. It brings together material which would otherwise be lost to posterity, providing an invaluable source of interest, reference and record relating to the traditions and practice of Morse.

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ON OUR FRONT COVER
Brass key with a plate which reads: 'A. Franks Ltd, Manufacturing Opticians, Manchester, established 1798'.
Photo/Collection: Wyn Davies

Comment

IN RECENT YEARS, an increasing number of companies have come to realise the importance of preserving records of their past activities and also examples of past products. Apart from the interest in knowing how a business came into being and later developed, there is still so much to be learned from the past.

In the light of this realisation, I was astounded to learn that GEC-Marconi is to auction off the Marconi Company archives from the period 1896 to the end of World War II. Included in the sale, which will take place at Christie's in South Kensington, London on April 24 and 25, are such items as Guglielmo Marconi's first patent (estimated selling price £1000 – £1500), some of the earliest recorded wireless messages, the earphone on which Marconi heard the first transatlantic signal, a number of Fleming valves, and logs, messages and other records from the *Titanic* sinking and the subsequent enquiries.

Company products including a magnetic detector and multiple tuner will also be offered, as will the microphone used by Dame Nellie Melba for her famous June 1920 broadcast from Chelmsford (forecast to make £5000 – £8000).

According to the Press Release from Christie's, the Sale forms part of the Centenary celebrations of GEC-Marconi. It is expected to raise a sum in excess of £1 million, which will be used to fund 'Marconi Days' – a new education training initiative which will train up to 1000 teachers every year in the teaching of electronics. The programme is to be directed by the Institution of Electrical Engineers.

Whilst welcoming any action which will help to promote the training of future generations of electronics engineers and technicians, I should hardly have thought that a company the size of GEC-Marconi would really find it necessary to sell off the proverbial 'family silver' in order to fund this programme.

When a private collector dies, unless he has made particular arrangements to the contrary, it is almost inevitable that his cherished collection will be broken up. Such is the way of things. However, I frankly find it beyond belief that any company should deliberately arrange for the evidence of its history to be dispersed around the globe, sold off piece by piece to the highest bidder, and to consider such to be an appropriate part of its Centenary celebrations.

It is, I suppose, too much to hope that some museum or philanthropist would be in a position to acquire the entire Marconi archive, and to make it available for continued research.

Geoff Arnold

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News

Support Growing to Keep Amateur Morse Test

The Common Licence Group of the 1996 Region 1 Conference of the International Amateur Radio Union agreed that the requirement for Morse code should remain a treaty obligation.

Following a survey of ARRL members, the Board of Directors of the American Radio Relay League has decided that the ARRL will not support changing the existing treaty requirement.

A 'no change' attitude is being taken at most venues where this matter is discussed, and a similar position is expected to emerge from the IARU Region 3 Conference in Beijing in 1997.

A special report on developments in the Morse Test controversy can be found on page 42 of this issue of *MM*.

Closure of FFL

The following message was heard on 8522.5kHz, on round slip, from St Lys Radio/FFL4, on 22 December 1996 at 1258 UTC.

'FROM DECEMBER 16 1996 AT 23H UTC SAINT LYS RADIO HAS PERMANENTLY STOPPED MORSE TELEGRAPHIC SERVICE. RADIOTELEPHONY SERVICE IS CLOSED BETWEEN 23H00 AND 07H00 UTC. RADIOTELEX SERVICE WILL CONTINUE TO BE OPEN ALL DAYLONG WITHOUT A NIGHT OPERATOR.

DEPUIS LE 16 DECEMBRE 1996 A 23 HEURES UTC SAINT LYS RADIO A CESSE LE SERVICE TELEGRAPHIQUE MORSE ET LE SERVICE RADIOTELEPHONIQUE N EST PLUS ASSURE QUE DE 7 HEURES A 23 HEURES UTC. LE SERVICE RADIOTELEX RESTE PERMANENT MAIS SANS OPERATEUR DE NUIT.'

(Our thanks to Bruce Morris GW4XXF for bringing this message to our attention.)

No More French Coast Stations on 500kHz

Brest-le-Conquet Radio/FFU, Boulogne-sur-Mer/FFB, and Marseille/FFM ceased all distress watch and wireless telegraphy services on 500kHz at midnight, 31 January 1997. There are now no French coast stations operating on 500kHz.

This event received considerable coverage in the British media. *The Times* of January 23 reported the decision of France Télécom to abandon Morse on 500kHz, noting that during the past year Brest-le-Conquet had received only 152 CW messages. The article referred to the current phasing out of maritime Morse, due for completion by 1999, and mentioned briefly the views of defenders of the code that it has its use – 'for ships where radio operators have strong accents or where radios are malfunctioning.'

The Guardian of February 1, reported the closure of FFU, including its emotive last message

'THIS IS OUR FINAL CRY ON 500 KHZ BEFORE ETERNAL SILENCE. BEST WISHES TO ALL REMAINING ON AIR. GOODBYE FROM ALL AT FFU. SILENT KEY FOREVER.'

The report also included an interview with ex-seagoing Radio Officer Bruce Morris GW4XXF who, as many *MM* readers know, has set himself the task of recording the final historic CW transmissions from coast stations around the world, as they progressively close down.

The same day, the BBC World Service also reported the closure of FFU and interviewed Bruce who, after describing the role of Morse at sea in its heyday, expressed concern that implementation of GMDSS (the Global Maritime Distress and Safety System) is not proceeding as efficiently as it should.

Yet another *MM* reader, Roy Clayton G4SSH, the RSGB's Chief Morse Examiner, was interviewed by NBC News as part of a TV report on the French station closure to be screened in the USA. He was also interviewed by BBC Radio Humberside on the same subject.

Roy has written an entertaining account of the NBC visit to his shack, and this will appear in the next issue of *MM*.

UK Morse Distress Watch to Close on 31 December 1997

Britain's Department of Transport announced on 27 January, 1997, that "the Morse Distress Watch, in use since 1912, is to be replaced in favour of a modern, safer and more reliable communications system.

'Subject to consultation with the maritime industry on how to manage the changeover, the Watch will be discontinued on 31 December 1997. The full changeover to the Global Maritime Distress and Safety System (GMDSS) will take place by 1 February 1999.'

Lord Goschen, Shipping Minister, said, 'Morse is increasingly obsolescent and has been superseded by a more effective terrestrial and satellite communications system, GMDSS.

'Safety is, as always, our first consideration and I am satisfied that the discontinuation of this service will not compromise safety in any way. There are sufficient alternative communication facilities in and around UK waters to secure withdrawal from this service before the world-wide discontinuation date in 1999.'

The DoT's press release concludes: 'The International Maritime Organisation's worldwide network of automated emergency communications for ships at sea – GMDSS – was introduced on 1 February 1992 and is being implemented in stages up to 1 February 1999. British Telecom currently provides the Morse telegraphy distress listening watch, giving continuous listening cover of distress, urgency and safety calls and messages.'

Norddeich Radio

Ralf Radermacher told *Worldwide Utility News* that on October 15, DAN just would not lie down. With an amusing little anecdote 'If all else fails ...' he recounted:

'I was just listening to DAN who, as we all know, has ceased all CW traffic, two weeks ago.

'They're taking a telegram from a ship and have had such difficulty copying him in phone that they (a) changed the operator who then (b) requested them to send in Morse code, on the same frequency.

'They are having him send the telegram in CW while they are replying in USB. Still some life in the old key, eh? '

(From the 'Nautical News' column in Worldwide Utility News (WUN), *October, 1996* (http://www.leonardo.net/berri/wun). *Our thanks to John Francis G4XVE for drawing our attention to this item.)*

World HST Championships 1997

The next IARU World High Speed Telegraphy Championships will be held in Sofia, Bulgaria, in early October 1997 (provisionally 6–10 October, but exact dates to be confirmed).

IARU national societies are being invited to send teams to the championships. When national teams are not entered, CW clubs or individuals may represent their countries, subject to the approval of their national society.

Help Wanted re Morse in US Navy

Paul Bock, K4MSG (USNR-RET), is starting a long-term project to research, and publish, the history of Morse use by the US Navy and Marine Corps, with an emphasis on the 'personal' side of being an operator (training, procedures used, interesting/unusual experiences, etc.) against a background of equipment and facility development.

Side issues will include the rate of development of its use (and any reluctance on that score on the part of the Navy hierarchy) and conversely the rapidity with which it was dropped, and the reasons for that.

Paul would like to hear from anyone who can provide recollections or material which would assist this project. Contact him at 38661 Pheasant Hill Lane, Hamilton, VA 20158, USA. Tel: (540) 882-4745. E-mail: pauboc@pulse.com

MEGS SFBM Birthday Celebration

The Morse Enthusiasts Group Scotland will be celebrating Samuel F.B. Morse's birthday 'on-the-air' from the wireless cabin on board the historic Royal Research Ship *Discovery*, afloat at Discovery Point, Dundee. The Group will be using its own callsign, GM0RSE.

The *Discovery* did not have wireless installed at the time Scott led the National Antarctic Expedition of 1901–04, nor did the *Terra Nova* which took Scott on his last expedition, sailing from New Zealand in 1910.

The *Discovery* had a major refit in 1923, when it became the 'RSS Discovery', and alterations were made to provide a wireless cabin at that time. According to Mrs Betty Hance, Company Historian, GEC-Marconi Electronics Ltd, the first Marconi wireless equipment fitted in the *Discovery* was the 'T-type' series.

(Information from Donald Black GM0PIV, Publicity Officer, MEGS)

News and Comment from France

The following gleanings are taken from *La Pioche* (4/96), journal of the Union

Française des Télégraphistes,

Concern is expressed about the encroachment of SSB onto the CW section of 40 metres during the course of certain contests. 'It is highly regrettable that some members of our association are among those who do not respect the subbands ...'

'At every international meeting the problem of the CW exam reappears. It is certain that the day will come when it will be replaced by other tests certainly more difficult and a lot less useful as a means of communication. It is only by our activity that we may guide the new members, especially on the VHF bands ...'

UFT's web-site is now operational at URL http://monoweb.mm-soft.fr/monoweb/ref83/uft.htm - This site contains extensive information *(in the French language. – Ed.)* about UFT and how to become a member. It is hoped to add further material relating to the history of telegraphy including illustrations of good quality.

'Our friend Lucien F8TM, the honorary president of REF-Union and "UFT Nr 001", has been particularly honoured on the occasion of the IARU Region 1 Conference which was held recently in Tel Aviv ... the IARU awarded him the G2BVN Trophy, which is only very rarely awarded to amateurs who have worked all their life for the interests of amateur radio and radio amateurs. Sincere best wishes from us all.'

'A short item of interest: In February 1943 an English agent was parachuted into Belgium, near Tournai. On arrival, his first task was to transmit the following message: "The squirrel likes nuts". In 1996, that is, 53 years afterwards, a former Belgian resistance-fighter, ON5MS, had the idea to have a souvenir QSO with that agent, by now aged 71 years.

'On the 8th of October last, I was very happy to participate in that memorable contact by copying "L'ecureuil aime les noix". I received with great pleasure a QSL from G0KCJ. The Belgian station was operated by ON6QO. – Just a little footnote for the record, and for the glory of CW. F5TRK/UFT842.'

(Extracted and summarised by MM *from* La Pioche *(4/96) journal of the Union Française des Télégraphistes. Original translation by Ken Quigg, GI4CRQ.)*

More Solenoids Available

When new *MM* reader Dan Keen K6DZ, of Modesto, California, enquired about the solenoids specified for Jim Farrior's telegraph sounder project (MM47, p.8), he discovered that the shipping charge from the supplier was five times the item price. He decided to purchase a larger number of the solenoids and has donated ten of them to *MM*, 'in appreciation of the magazine.'

If any readers would like to have one of these solenoids to make up or experiment with Jim's design, they are available free of charge on the same basis as before. Just send a postcard to Tony Smith (at the address inside the front cover), writing on it the word SOLENOID and your name and address in capital letters.

On this occasion, the offer extends to the USA as well as other countries, and the senders of the first ten cards

drawn from a hat on 31 March 1997 will receive the solenoids free of charge. If any remain after that date, and further requests are received, they will be distributed on a 'first come, first served basis.' Entries will not be acknowledged and no correspondence can be entered into. Our thanks to Dan Keen for making these additional solenoids available.

Photocopies of the instructions for making the solenoid sounder (4 sheets) can still be obtained from Tony for 50p (UK – stamps acceptable) or for 2x IRCs from outside the UK.

Transatlantic Anniversary a Success

The W1BCG operation from Greenwich, Connecticut, to commemorate the 75th anniversary of the first successful transatlantic tests on ham radio *(see MM48, p.8, for more details. – Ed.)* made over 800 contacts with the replica transmitter – despite its being out of service for a short time late on the evening of December 14 because of a keying relay problem.

Operators reported the noise level was high enough to cover many stations on 160 metres. 'We could hear pileups of about S5–6 signals, but the noise kept us from picking the pileup apart and working through it,' said Al Brogdon, K3KMO, an ARRL staff member who volunteered to be one of the W1BCG operators over the weekend. W1BCG is the club station callsign of the Shoreline Amateur Radio Club.

The replica 160-metre transmitter for W1BCG was at the home of George Wells, KA1JUV. The antenna was an 80-foot shunt-fed tower with 50 temporary radials laid out on top of the ground. Transmitter output was 300W. (After the operation was over, event coordinator Tim Walker, N2GIG, took up the more than one mile of wire used for the radials!) The group used a modern transceiver as a receiver for the event.

The replica transmitter was heard by several British hams, who telephoned to report the reception. At least one of those listening on the other side of the Atlantic heard the signals on a genuine 1920s-era receiver! The British group was unable to QSO W1BCG because of the low power limit on 160 metres in the UK and the high noise in Greenwich, Connecticut.

W1BCG racked up nearly 1000 additional contacts on all bands during its special event operation. A lot of incoming QSLs already have shown up, and W1BCG QSL cards will be sent as soon as possible. If you worked W1BCG during the commemorative operation and would like a certificate, write SARA, Box 4225, Stamford, CT 06907-0225.

(From the ARRL Letter, *published by the American Radio Relay League, 20 December 1996)*

Yeovil QRP Convention CW Funrun

Each year, two weeks before the Yeovil QRP Convention, the Yeovil Amateur Radio Club runs a non-serious CW contest known as 'The QRP Funrun'. The Club's own station, GB2LOW acts as a Funrun Bonus Station and a further two stations, selected from last year's entrants, also act as Bonus Stations. Another novel feature is that all stations may work all other stations, on both

bands, every evening of the contest. Stations across Europe are particularly invited to join UK stations in this fun QRP event. Details and rules of the Funrun are as follows:

Funrun Bonus Stations: GB2LOW in Yeovil on 3.558 and 7.028MHz. GW3JSV near Welshpool, Powys, on 3.563 and 7.023MHz. GD0LQE in Laxey, Isle of Man, on 3.553 and 7.033MHz. All frequencies ±2kHz.

Dates and Times: Tuesday 6 May to Friday 9 May 1997, 20.00 to 22.00 hrs UK Clock Time, each evening.

Frequencies: 3.560 and 7.030MHz, both ±10kHz.

Call: CQ FR. **Contacts:** All contacts must be between QRP stations, maximum 5W output. All stations may be worked ONCE EACH EVENING on EACH BAND. Funrun Bonus Stations will operate randomly for one hour on each band each evening.

Exchange: RST, Serial Number (see below), Output Power and Name.

Serial Number: The three-figure serial number may start at any number of your choice, not less than 100, and must then be incremented by one for each QSO throughout the whole of the contest. However, the three Funrun Bonus Stations will all commence with 001.

Scoring: Each QSO with another QRP station = 10 points. Each QSO with a Funrun Bonus Station = 25 points. All duplicates must be logged and marked, and no points claimed. Points will be deducted for unmarked duplicates at twice the QSO score.

Entry Sheets: Separate logs for each band, with sub-totals for each evening, preferably in RSGB format. Include a separate signed RSGB style cover sheet stating Rig, Power Output and Aerial. Send to Eric H. Godfrey G3GC, Dorset Reach, 60 Chilton Grove, Yeovil, Somerset BA21 4AW, to arrive not later than Thursday 15 May 1997.

Awards: Certificates will be awarded for the highest score for any three evenings out of the four on each band; also for the highest total overall score for any three evenings on both bands. These evenings do not necessarily have to be the same on 3.5MHz as 7MHz. A certificate will also be awarded to the station consistently using the lowest power. The certificates will be presented at the Convention on 18 May 1997, immediately after the lunch break.

Short Wave Listeners: Listener reports will be appreciated, and a certificate will be awarded to the listener who submits the most comprehensive report.

Further Information: From Eric Godfrey G3GC, Tel. 01935 475533.

Note: The 13th Yeovil QRP Convention will be held at The Digby Hall, Hound Street, Sherborne, Dorset, on Sunday 18 May 1997. Talk-in on S22; Free parking; Doors open 9.00 a.m. Includes three lectures; In-hall catering; Trade stand; Bring and buy; Novice display; Construction challenge; Prize draw; and more.

Further details from Peter Burridge G3CQR, 9 Quarr Drive, Sherborne, Dorset. Tel: 01935 813054.

ARRL to Propose More Stringent Morse Test?

ARRL members have been invited to add their ideas, comments and recommendations to those of the ARRL WRC-

99 Planning Committee, which has suggested sweeping changes to the Amateur Radio licensing structure in the US. These proposals include

- elimination of the Novice license
- creation of a new Intermediate license to replace the Technician Plus
- expanded HF privileges for Intermediate licensees
- a 10-wpm General CW test, with more stringent testing standards for all CW exams – including a return to a sending test and the requirement for one minute of solid copy during a five-minute receiving test – instead of the current method that tests on the content of the CW text.

(The Intermediate CW test would be 5 words per minute, but the General class CW requirement would be set at 10 wpm. There would be no change in the 20-wpm requirement for the Extra class.)

It is emphasised that the committee's proposals are only a starting point for discussion, and the ARRL Board will make no decision before its July 1997 meeting. Only after there has been an opportunity for in-depth consideration and discussion by the membership will the Board consider approaching the FCC with a rulemaking proposal.

(Information from the ARRL Letter Online, *published by the American Radio Relay League, 31 January 1997)*

Archbishop Learned Morse

Interviewed by Michael Parkinson in the *Daily Telegraph* on December 24, Dr George Carey, Archbishop of Canterbury, revealed that as a young man his ambition was to become a wireless operator, and he learned the Morse code when he joined the RAF to do his national service.

A sure sign that the Archbishop is bored with proceedings nowadays, reported Parkinson, 'is when he starts to mutter Morse under his breath'.

(Contributed by Jack Barker)

Kids Read About Morse

A new children's magazine *No Kidding!*, distributed free to schoolchildren aged 7–11 in London, carried a 3-page main feature article on Morse in its January 1997 issue. The article described the origins of Morse, its early impact on society, its role in the rescue of survivors from the *Titanic*, and its impending demise at sea. It also described a fun way of writing Morse, 'Chinese style', as described in MM48, p.11.

Fifty Morse signalling torches were offered as prizes in a competition asking 'what do the initials "F.B." mean in the name "Samuel F.B. Morse"?' This issue went to 100 000 schoolchildren and at the time of writing, hundreds of entries had been received for the competition (and were still pouring in), with many children writing out the initials in Morse code! Perhaps this exposure of the code to so many young children will help sow a seed in some of them leading to a future interest in Morse telegraphy?

The article was written by Tony Smith, from *MM*, and *No Kidding* is published by GibsonOrrSmith, the latter part of the partnership being Tony's daughter, journalist Jane Smith.

Don't forget to let Tony Smith know about any Morse news or events you may hear of

Key WT 8 Amp

Final Instalment

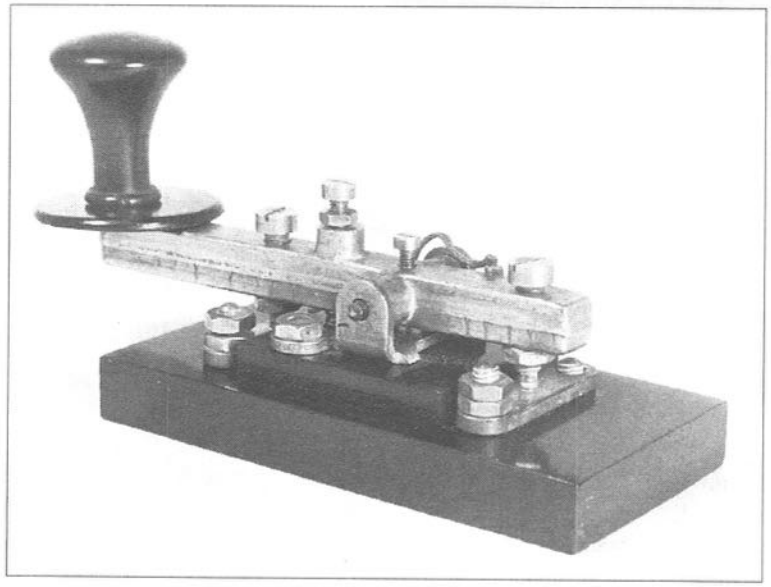
by Tony Smith G4FAI

THE KEY WT 8 AMP just won't go away! The *MM* survey in MM28 discovered over 100 versions of this versatile military key originating from six different countries. A follow-up article in MM37 reported more versions, with additional information to supplement the original report. It also identified the elusive No 1 key dated approximately 1926.

Since then further information has continued to reach *MM*, and this article records everything received since MM37.

Eventually, it may be possible to bring everything together to be included in a future *Best of MM* if a demand is perceived.

LMK No 2 MkII ZA 2869 with unusual ebonite base. Does anyone recognise this application please? Is the knob and skirt original?



Collection: John Goldberg G3ETH. Photo: G3GKS

More Keys

Further versions of the Key WT 8 Amp, reported since MM37, are listed below. For the benefit of new readers, the numbered column headings (as used in the original survey) relate to the characteristics of the keys as follows.

1 – Reference No ZA or other, or not indicated (N).
2 – Base with sharp (S) or rounded (R) corners (includes two types, small radius and larger radius).
3 – Base has extra (5th) mounting hole suitable for Key & Plug Assembly No 8 or No 9. Indicated as '5'.
4 – Bearing pin, taper (T) or parallel (P).
5 – Finger plate/knob skirt (F). Some noted with, some without (S).
6 – Maker, or not indicated (N).
7 – Year, or not indicated (N).
8 – Country: Australia (A), Canada (C), England (E), New Zealand (NZ), South Africa (SA), USA (US), not indicated (N).

GROUP 1

KEY WT 8 AMP No 2. THREE BRIDGES. P.O. TYPE TENSIONER (TENSION SPRING)

1	2	3	4	5	6	7	8
N	S		T		APP. MFG. CO. LTD	1938	N
N	R		T		PT&EW/2	1940	E

All nickel plated brass metalwork.

N	R	5	T		ET LTD	941	E

Nickel plated brass arm.

N	?		T		SUTTON-HORSLEY	1941	N

Corners of base of the key reported have apparently been rounded manually. Base is marked with a large 'C' in yellow paint with the WD arrow inside it.

GROUP 2

KEY WT 8 AMP No 3. THREE BRIDGES. P.O. TYPE TENSIONER (TENSION SPRING)

1	2	3	4	5	6	7	8
ZA4605	R		T		LMK	1940	E

Insulating sleeve and finger guard under knob.

GROUP 11

KEY WT 8 AMP No 2 MkII. NO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

1	2	3	4	5	6	7	8
ZA3145	R		P	F	PT & EW	1940	E

Nickel plated brass arm. Circled 1 on underside of base.

ZA 3145	R		P		PX/2	N	N

All brass finish. 'PX' may be maker but this is not confirmed.

ZA 2869	S		P	F	LMK	N	E

Moulded brass arm (nickel plated) with arm and spacers cast as one piece. Identification engraved on top of arm. Unusual knob and skirt which may not be original.

Unusual base of ebonite, in two parts. Bearing assembly is on a sub-base 1 3/4 x 1 1/2 x 7/32in thick. This is mounted on a main base 4 x 2 x 7/16in thick. Front and back contact plates are mounted separately on the main base. There are no mounting holes and the assembly is heavy enough to be free-standing. See photo on page 9.

1	2	3	4	5	6	7	8
N	R		P		PX/2	N	N

ZBA (zinc base alloy) cast arm. 'PX' may be maker but this is not confirmed.

Makers

A.G.I.: Present day address of this company is Aeronautical & General Instruments Ltd, Ebblake Industrial Estate, Verwood, Dorset, BH31 6BE. The new key reported in MM37, under Group 1 and made by this company, should therefore indicate country of origin as England (E).

APP. MFG CO. LTD: New entry. Further information welcomed.

CLIPSAL: John Elwood, WW7P, has a key made by this company (not a Key WT 8 Amp), marked Ref No. 2/41, which possibly dates it as 1941, in which the name and address of the company is given as: Gerard Electric Mfrs Ltd, Park Terrace, Bowden, South Australia.

PX: It is still not certain if the letters 'PX' found on some keys indicate the maker. Ken Homewood, G4UBP, reports that there was a company called PX Ltd who made aerial components and small Bakelite mouldings pre-war. Their trade mark was PX either side of a pixie, and he thinks their products were marketed by Woolworth's. Does any reader have further information about this company please?

SUTTON-HORSLEY: New entry. Further information welcomed.

There is still incomplete information on the full names and/or original addresses of the following makers. If anyone can help to fill in the gaps please contact *MM*.

A.M.C.; APP. MFG CO. LTD.; AWA (Amalgamated Wireless Australia); © (The Chad Valley Co?); C.E.L.; EWT (Contractors to P.M.G. Australia?); H & C; L.A.M.; LC (Contractors to P.M.G. Australia?); LMK Manufacturing Co. Ltd.; N.C. Co; Northern Electric Co, Canada; P.M.G. (Post-Master General, Australia?); PX (It is not known for certain if these are a maker's initials. See above.); Pye; T.B. & S.; U↑D (South Africa?); Westclox (Canada); Willis & Co Ltd (London).

Unit Operator No 1, MkII, Y.A. 8414

In the survey results in MM28, several types of Key WT 8 Amp were reported installed in the Unit Operator No. 1, MkII, and the following comments were offered on this unit:

'It appears that this unit is part of a "Training Set Universal" for voice and operator training. One correspondent suggests that these units also controlled WS Nos 19 or 21, but no other information is available... Further information welcomed.'

Wyn Davies has now sent *MM* a copy of the Working Instructions for the Training Set, Universal, Wireless, No 1, Mk.1

& Mk.2, dated December 1948 (reprinted August 1953). This booklet describes the functions of the set as follows:

'The Training Set Universal, Wireless, No. 1 is a semi-portable instrument for training operators in Morse reading and sending and R.T. communication.

'The set can also be used for Morse training on line instruments such as the Fullerphone.

'Facilities are provided for individual and class tuition and indoor wireless exercises. The equipment also caters for Morse and R.T. interference and background noise interference.

'The Mk.2 equipment differs from the Mk.1 equipment in that it uses 4-point plugs and sockets in place of the 6-point connectors used on the Mk.1 equipment.'

The set provided tuition for a class of up to 36 operators arranged in groups of 6. All operations were under the control of the instructor, and each operator had a microphone and headphones plugged into an operator's control unit fitted to the table in front of him. The units, which contained a Key WT 8 Amp, were connected to the instructor's set by four-core cables. See drawings.

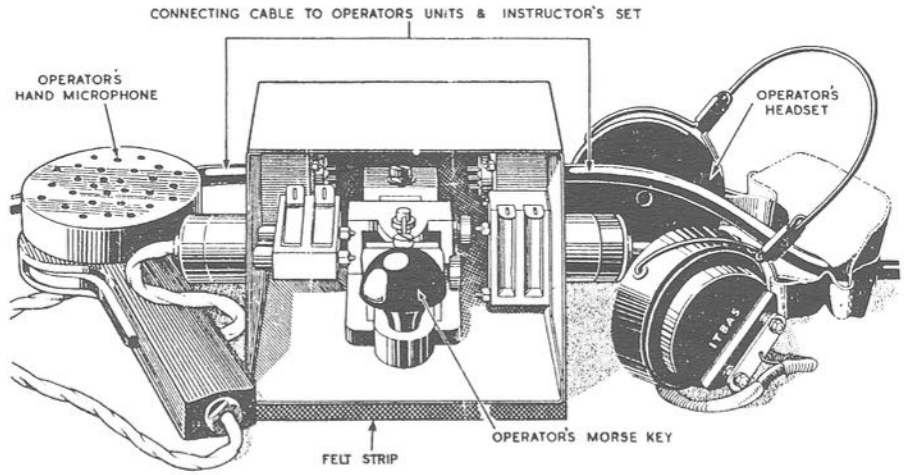
From this description it seems unlikely that the operator's control unit was used with the Wireless Sets Nos 19 or 21, as was suggested in the extract from the survey report quoted above.

Navy Use

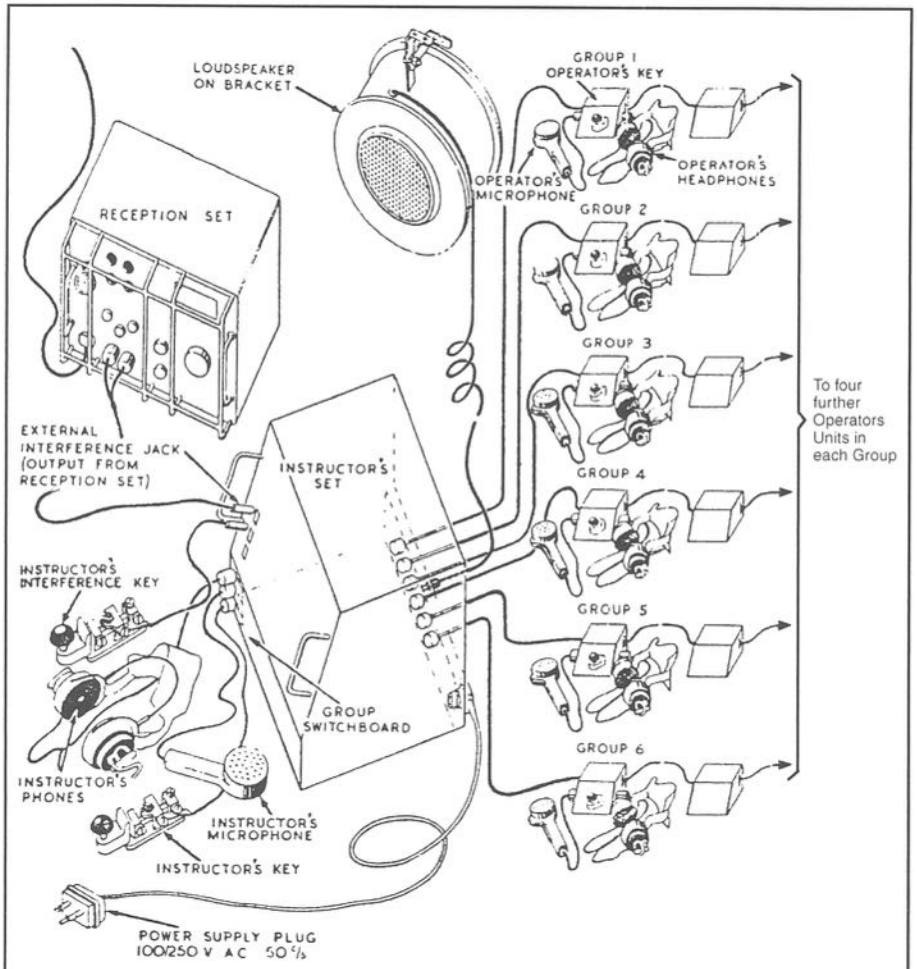
In MM37, Henri Jacob reported an Admiralty Pattern 1271 Buzzer Repeater and Key Unit, Ser. No. WER 12917, containing a Key WT 8 Amp No 2 MkII (no bridges), with an RAF style 10A/7790 knob.

Wyn Davies has now reported a similar AP 1271 Unit, Serial No 3686, WER, but with a three bridge, simple tensioner, Key WT 8 Amp. The key has no base of its own, but is incorporated into the unit's base. The knob is also a type 10A/7790. See photo.

Wyn was told that this was used on



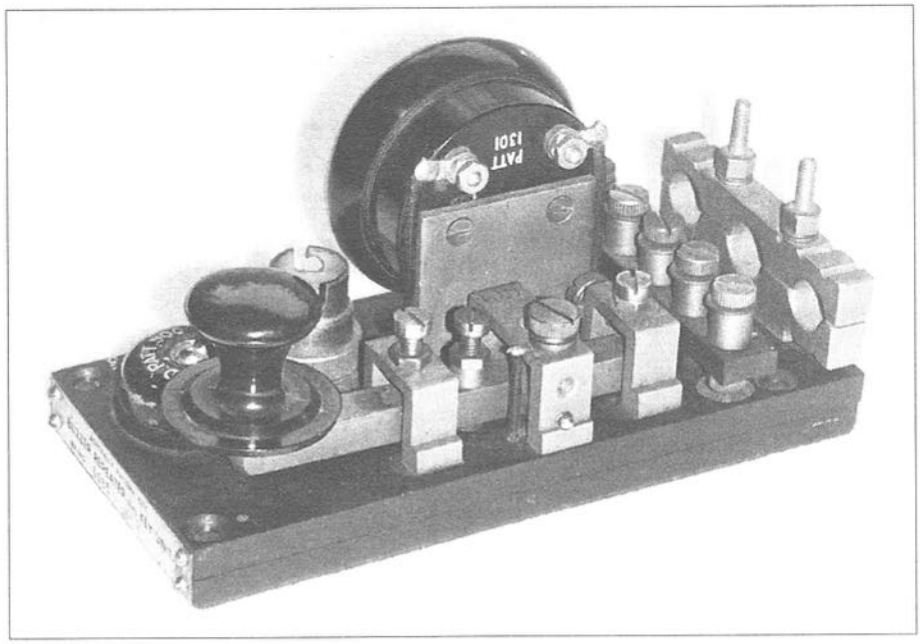
Operator's control unit (Mk.1 model)



Complete layout of the Training Set Universal, Wireless, No 1.
Each of the 36 operator's control units contained a Key WT 8 Amp.
The 'reception set' was a broadcast receiver which provided interference to local signals or allowed trainees to receive broadcast signals

large warships for internal communications between the main W/T office and other offices. As well as the 'phones earpiece it has a miniature bulb which was used to attract attention when the Radio Supervisor was calling. "Woe betide the rating", says Wyn, "who failed to notice the flashing light!"

Can anyone confirm this application please?



Photo/Collection: Wyn Davies

Admiralty Pattern AP 1271 Unit, Serial No 3686, WER, with a three bridge, simple tensioner, Key WT 8 Amp with no base of its own, but fitted to the unit's base. The knob is an RAF type 10A/7790

No More Follow-Ups

This is the last of the follow-up articles on the Key WT 8 Amp. Any further types reported, or information received, will be included in 'Showcase', 'Info Please!', or 'Your Letters' as appropriate.

For the record, the following articles on the Key WT 8 Amp have now appeared in *MM* which, between them, provide an extraordinary range of information on this internationally made and widely used military key.

Key and Plug Assembly, No 9, (Alex Vilensky), MM13, p.44

The Ubiquitous Key WT 8 Amp (Jim Lycett), MM22, p.22.

Key WT 8 Amp, Worldwide Survey Results (Tony Smith), MM28, p.7.

Key WT 8 Amp, Further Information (Tony Smith), MM37, p.9.

Keys for the Wireless Set No 19, (Canada & USA) (Chris Bisaillion), MM45, p.27.

Key WT 8 Amp, Final Instalment (Tony Smith), this article. ***MM***

Please mention *Morsum Magnificat* when responding to advertisements

The Museum of Submarine Telegraphy
Porthcurno, Cornwall

John Pender, founder of the Falmouth, Gibraltar and Malta Telegraph Company

PORTHCURNO was the largest international cable station in the world, with 14 undersea cables fanning out from the Cornish coast to all parts of the British Empire and beyond. The station closed in 1970 after a century of service, but the Cable & Wireless telecommunications training college remained on site until 1993.

David Kendall-Carpenter of the college staff, seeing the end of an era, brought together a unique collection of beautiful brass and mahogany instruments from the pioneering years to create a college museum, and when the Company moved its training college to Coventry in 1993 it was planned to move the collection with it.

Saved for the County

A relocated museum, however, would have lost much of its historic context and the Trevithick Trust, responsible for aspects of Cornwall's industrial archaeology, was anxious that it should remain in the County. Thanks to the efforts of the Trust, and with the support of Cable & Wireless, the museum has remained at Porthcurno as an important scientific reference collection, open to the public.

It is located in tunnels which were cut in the granite hillside in WWII to protect the station from enemy action. On display is an unrivalled collection of historic telegraph equipment, dating from the Victorian era to WWII and beyond. Many exhibits are demonstrated to visitors and are in full working order.

Birth of the Eastern Telegraph Company

The history of the Porthcurno telegraph station itself is an important part of the story told by the museum. It began in 1870 when Porthcurno was the

landing site for an all-undersea cable link between England and Bombay, India. The company that laid this first cable into Porthcurno was the Falmouth, Gibraltar and Malta Telegraph Company.

In 1872, the three companies which had each laid a portion of the Porthcurno-Bombay cable merged to form the Eastern Telegraph Company with a system that had already been extended to Australia.

The Eastern Telegraph and associated companies went on to develop a world-wide submarine cable network. Porthcurno was the gateway to this network and in time became the world's largest cable station operating fourteen different cables.

Its telegraphic code name was 'PK', and traffic was sent in cable-code, a type of Morse which in early years was sent by hand and received as a flickering spot of light or a wavering ink line on paper tape.

Threat from Marconi

In December 1901, the staff at Porthcurno became very worried at the news of Marconi's success in transmitting the letter 'S' by wireless across the Atlantic. The London Head Office of the Eastern Telegraph Company told them to find out how much of a threat Marconi's system was to the company. Did it work 24 hours a day like the cables? How fast was it? Was it reliable, or full of errors?

A 170ft wooden mast was erected at Porthcurno to support a large aerial to eavesdrop on Marconi's experiments. The company was relieved to discover that early wireless was not very reliable.

Bringing a cable ashore at Porthcurno, from the Azores, 1906

Fading and crashes of static made operators miss Morse letters from time to time, and in any case the main use of the new invention was apparently ship-to-shore telegraphy.

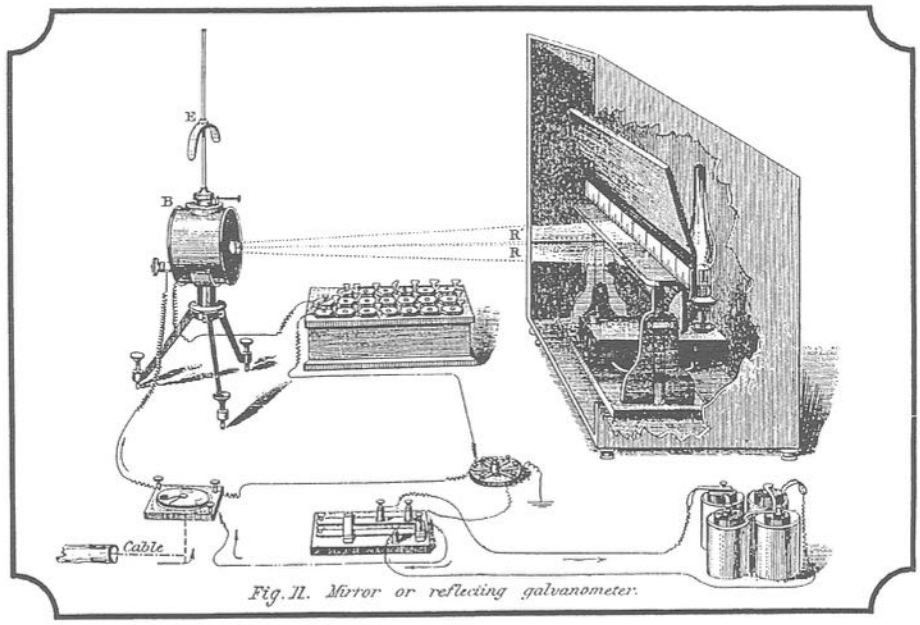
However, the position changed drastically by the late 1920s. The short waves had been exploited and reliable beam wireless services were carrying public traffic around the Empire in direct competition with The Eastern Telegraph and other cable companies who were suffering reduced revenues as a result.

Enter Cable & Wireless

At that point, the British Government decided that an integrated network of cable and wireless was in the best interests of the Empire, and initiated a merger between the operating side of the Marconi Company and the old submarine cable companies to form a new company whose name became Cable and Wireless in 1934.

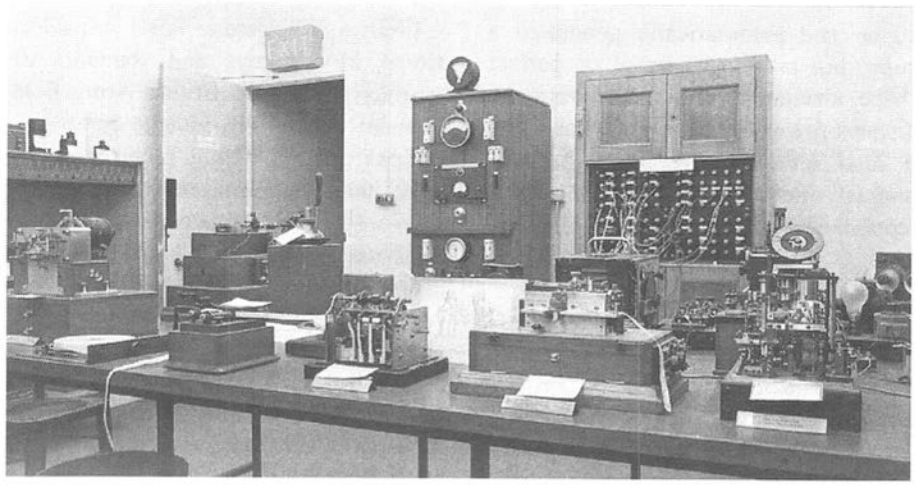
In the decades following the establishment of the cable station at Porthcurno, many technical experiments were carried out; and many of the methods used to locate faults on submarine cables had their origins at the station.

In the museum it is still possible to demonstrate the problems involved in finding breaks and faults in telegraph cables. It was a responsible task. A mistake or error in testing could result in a cable repair ship being sent miles off-course from the real location of the fault, with costly delays and loss of revenue.



MIRROR CIRCUIT - 1879

A hand key and mirror galvanometer - equipment used on the early cables



The instrument room at Porthcurno today

Mirror Galvanometer

The early cables had no amplifiers. Signals from Porthcurno to Newfoundland were carried by a 2000 miles long single insulated copper wire, with the return path for current via sea water.

The sensitive signal detector at the receiving end was the 'mirror galvanometer'. In this, the feeble signals received created tiny movements in a delicately suspended magnetic needle inside a coil (later models used the reverse arrangement, a suspended coil inside the poles of a magnet). A beam of light from an oil lamp was reflected back onto a screen by a tiny mirror which moved with the needle, to show signals as a flickering spot of light.

A 'reader' sat watching the light and deciphered the code, calling out the letters one by one to a 'writer' who wrote out the telegrams in copperplate handwriting.

A reader who lost concentration, or blinked at the wrong moment and missed an incoming letter, was tempted to guess what it was from the context, resulting in frequent errors. A device to record signals was urgently needed, and in the 1870s William Thompson, later Lord Kelvin of Glasgow University, developed the sensitive 'siphon-recorder' which traced the incoming signals in a wavering ink line onto paper tape, replacing the tedious mirror working.

For the very long cables, relay stations were established on remote islands like Ascension and St. Helena, where operators working in shifts round the clock read incoming signals and 'repeated' them manually into the next section of the cable.

Regenerators

Sensitive relays were introduced in the 1880s but these could not remove distortion or errors, and often made things worse. In the 1920s Eastern Telegraph developed and introduced 'regenerators' which sampled each incoming

signal and automatically generated a copy, but as a new signal of perfect shape, size and duration. This removed distortion and timing errors, but sadly it also removed the large staff of manual operators – with consequent redundancies.

A Unique Collection

All this is part of the story told at Porthcurno in the underground tunnels where the museum is located. To be seen here are the blast-proof doors installed for wartime protection, the underground power station, early telegraph systems, vintage wireless sets, and the regenerator system described above.

In its day, the worldwide Victorian cable network had a social, political, and commercial significance equal to that of the railways, yet almost nothing remains except miles of rusting cables at the bottom of the world's oceans – and this one collection at Porthcurno.

Much of the value of the collection lies in its completeness. Not only does it include rare early apparatus used to send and receive telegrams, but also the unusual supplies such as glass siphons, beeswax, phosphor-bronze strip, and unspun silk thread needed to repair and maintain the equipment.

Vintage CW Station Planned

There are also samples of cable, cable-ship laying reports, models of cable-ships, cable testing sets, nautical charts, and more. New exhibits in the past year, expanding the scope of the museum, include a working 'Sterling' spark transmitter; a WWI 'trench' spark transmitter; a single needle telegraph c.1860; a Wheatstone ABC set; additional Morse keys and sounders of various patterns; a British Army field sounder set; various vintage communications and domestic receivers, and other items. Furthermore, an operational CW-only vintage amateur radio station is planned, which will use only equipment more than 50 years old.

Admission Details – 1997

The museum is open every Wednesday and Friday from Friday March 28 to Friday October 31. Tours start every hour, from 11.00 a.m. to 3.00 p.m., at the cable hut at the top of the beach, or from the public car park if raining.

Each tour lasts from one and a quarter to one and a half hours, with a maximum of 20 visitors per tour. Admission charges are – Adult £3.00, Concession (O.A.P.) £2.50, Child or Student £1.50, Family (2 adults + 3 children/students) £8.00. Special tours for booked parties, schools, clubs, etc., can be arranged at other times. For reservations or information telephone 01209 612142.

There is often a working party at the museum on a Monday from about 10.30 a.m. to 1.00 p.m. If any *MM* reader is in Cornwall but just cannot make Wednesday or Friday, try telephoning John Packer, the Hon. Curator, on 01736 67088 to enquire if an 'ad hoc' unguided visit can be arranged while the working party is at the museum (mention *MM*).

Access – and Other Attractions

To reach the museum by road, take the Land's End road (A30) and turn left to St. Buryan a few miles west of Penzance, then follow signposts to

The Museum Notice Board

Porthcurno (also signed Minack Theatre) and park at the cove.

Apart from the Porthcurno Museum, John Packer tells us there are other sites nearby, mainly on the Lizard peninsula, of possible interest to *MM* readers. These include the Goonhilly satellite Earth Station, part of which is open to the public. Poldhu Cove is the site of Marconi's 1901 transatlantic successful experiment, and has the Marconi memorial on its clifftop. It is also the site of the Poldhu Amateur Radio club's shack (GB2GM) and a mini-museum.

Bass Point Signal Station is near Lizard Point. It is not open to the public, but it is a striking building on the clifftop coastal path. Nearby along the path is the Marconi Ship-to-Shore Wireless Hut, the oldest extant wireless telegraph station building in the world. This is not open to the public yet, but it was recently bought by the National Trust who may erect a replica of its wooden aerial mast and fit it with vintage spark equipment. Close by is Lizard Point lighthouse with a Morse LF beacon (284.5kHz, callsign LZ) which is open to the public in summer.

Finally, Land's End Radio near St. Just, one of the oldest UK coast stations, is still operational. It is not open to the public, but doubtless any ex-maritime Radio Officer or member of BT could arrange a visit by telephoning first!

Other visitor sites of a wider interest are linked with the county's industrial past. These include Cornish beam engines at St. Just and Pool; the National Lighthouse Centre in Penzance; the Geevor Tin Mine; the Mineral Tramways Trail at Redruth; and the Pilchard Works in Newlyn.

A special day visit to Porthcurno is clearly out of the question for most readers of *MM*, but for any Morse enthusiast a visit to the museum could be the highlight of a satisfying and instructive holiday spent in the county of Cornwall!

(Information taken from The Porthcurno Story *and other museum literature by kind permission of the Porthcurno Museum of Submarine Telegraphy.)*

Book Review

Canadian Railway Telegraph History

by Robert Burnet

reviewed by Tony Smith

ROBERT BURNET took almost six years to gather material for this comprehensive 240-page book. It covers the Development and Formation of the Railway Telegraph Companies in Canada; Early telegraphic inventions elsewhere which led to that development; The Tools of the Telegraph – including batteries, keys, sounders, relays, typewriters, telegraph poles, insulators, and lines – and more; Telegraph Circuits; Telegraph Pedagogy; Telegrams, Services, Forms & Employees. It also has 8 Appendices; a Glossary; Footnotes; a Bibliography; and an Index.

The Morse telegraph began in the United States, and the code used on the Canadian telegraphs was American Morse. The first Canadian telegraph company was the Toronto, Hamilton, Niagara & St. Catharines Electro-Magnetic Telegraph Company, incorporated in 1846. This first line, and the lines of the company that took it over in 1852, the Montreal Telegraph Company were, unlike those of the United States, not connected with the railways.

In that year telegraph poles and wires began to appear alongside Canadian railtracks, on the Grand Trunk Railway, and the book takes up the story from there with much detail, and many illustrations. These include original photographs, sketches, telegrams, official notices, newspaper cuttings, and several poems from the past, including the following:

The Telegrapher's Lament

It's not my job to run the train
The whistle I can't blow
It's not for me to say how far
The train's allowed to go
It's not my place to shoot off steam
Nor even clang the bell
But let the damn thing jump the track
And just see who catches hell.

(Anon.)

A Station Agent's job was complex. He sent and received messages by the Morse telegraph, passed on orders to trains, and attended to all the associated

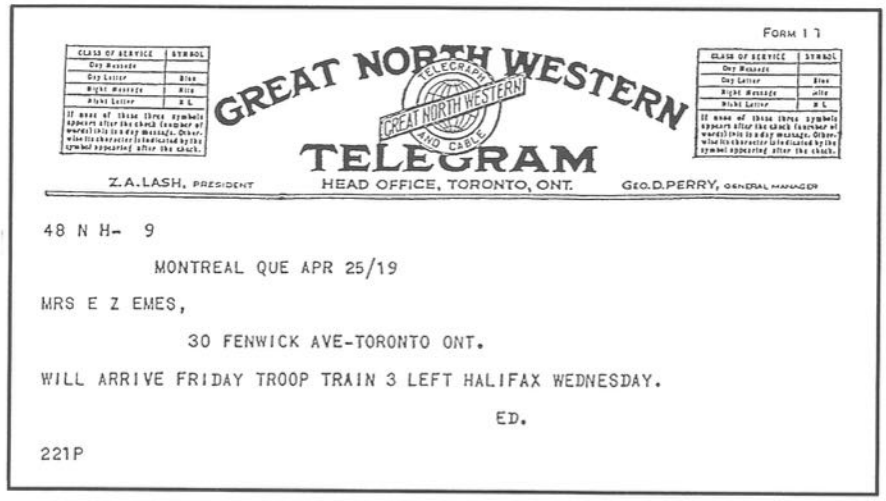
administrative work. He was also the local representative of virtually all other railway departments, performing a wide range of duties for the Freight, Passenger, Express, Communications and Industrial Departments. He also handled, and accounted for, traffic for other telegraph organisations whose messages were routed through the railway telegraph system.

The following, written in 1898 by J.M. Mackenzie in *The Railway Station – A Social History*, and quoted in the book, sums up what the railway telegraph was all about;

'The telegraph, though it occasionally blunders, is the swiftest and most zealous of all railway servants. It gives word of warning to the signal man, a hint of danger to the driver, a peremptory instruction to the station-master in emergency; it speaks even to the shunter amid the maze of waggons, and to the platelayer busy with his gang on the creosoted sleepers and rusty rails in the lonely cutting. It marshals goods trains, stops expresses, orders special trains, helps every official on the line ...'

Much later, in 1937, in the Canadian Pacific Railway's book, *CPR Facts and Figures*, someone wrote:

'Time continues to indicate that the transmission of the written word by telegraph is indispensable to trade, industry, and social life. Its reliability, coupled with its accuracy and speed, undoubtedly will continue to retain for it a popularity over all other forms of written communication ... Looking forward to the future, there seems to be no more reason to believe that wires and cables will be supplanted by other means of communication than the motor cars and trucks will supersede the railway train.' There was more change ahead than he anticipated, but his comments certainly show how the telegraph was regarded in its time.



FORM 1 7

GREAT NORTH WESTERN TELEGRAPH

TELEGRAM

Z.A.LASH, PRESIDENT — HEAD OFFICE, TORONTO, ONT. — GEO.D.PERRY, GENERAL MANAGER

48 N H- 9

MONTREAL QUE APR 25/19

MRS E Z EMES,

30 FENWICK AVE-TORONTO ONT.

WILL ARRIVE FRIDAY TROOP TRAIN 3 LEFT HALIFAX WEDNESDAY.

ED.

221P

Great North Western Telegram 1919

A detailed Canadian Telegraph Chronology covers the period from the setting up of Canada's first telegraph company in 1846 to 30 May 1972, when the last official railway telegraph message was sent from Batiscan, Quebec. That unknown writer in 1937 had not looked far enough into the future!

One would think, after all this, that I had come to the end of the book, but there's much more! The appendices provide details of the early Canadian telegraph companies; the Canadian law of 1852 covering the incorporation of Electric Telegraph Companies; Grand Trunk Railway Rules of 1864 for the repair of telegraph lines; Telegraph pole and wire mileages, 1846–1970; Canadian telegraphic 'firsts'; Styles of telegraph signs used by Canadian National and Canadian Pacific on their railway stations; and there is also an extensive Glossary of telegraph operator's terms and abbreviations.

CNR poster, June 1934

Generation after generation were telegraph operators. It was a family tradition and a job with status. The author of this book, himself, is a descendant of three generations of telegraphers. The telegraph is sadly missed by those who were associated with it, and it still greatly interests others born in a later age. They are fascinated by the achievements of their forebears using early communications technology, and by the traditions and practices that arose from it.

The book provides a wealth of information on the subject. With many fine illustrations, including photographs from the archives of the Canadian National and Canadian Pacific Railways, it should appeal to all those interested in telegraph and railway history.

Canadian Railway Telegraph History, ISBN 0-9680243-0-0, by Robert Burnet, can be obtained from: Telegraph Key & Sounder, P.O. Box 40526, 5230 Dundas Street West, Etobicoke, Ontario, Canada M9B 6K8. For purchasers outside Canada, the cost is US$54.00 by International Money Order, payable to 'Telegraph Key & Sounder'. Internet inquiries can be made via e-mail to rrrobbie@idirect.com, or via the Canadian Railway Telegraph website, http://web.idirect.com/~rburnet

MM

Keying the *Titanic*

by Geoff Arnold

RECENT MONTHS have seen a reawakening of interest in the White Star liner *Titanic*, which sank with great loss of life on 15 April 1912. No doubt this has been prompted in part at least by the failed attempt during 1996 to raise a portion of the wreck.

Some of the resulting discussions have centred on the wireless installation, and in particular among telegraphy collectors, the type of Morse key which was fitted. One might have expected to be able to answer that question by reference to an official photograph of the installation. Surprisingly, there appears to be none in the archives of White Star Line, of shipbuilders Harland and Wolff, Belfast, or of the equipment providers – Marconi's Wireless Telegraph Co. Ltd, now GEC-Marconi.

A description of the wireless installation was published in *The Marconigraph* of May 1912 (see panel opposite), but this was illustrated only with a photograph of *Titanic* taken as she sailed from Southampton, and it makes no reference to the Morse keys.

There is in fact one photograph of the wireless room in existence, which has to my knowledge appeared in at least one book[1]. This is said to have been taken by a Jesuit priest during the ill-fated maiden voyage, but it is a very 'soot-and-whitewash' view, and lacks detail. To judge from the strange ghostly multiple images of some of the equipment, the photograph must have been taken through two layers of glass, perhaps internal windows between a public accepting office and the receiving room.

Careful study of the photograph, with the aid of a bright light and a magnifying glass, gives an impression that there **could** be two keys of the two-lever type which was common at the time, plus a double magnetic key behind, but it is just an impression. So where can we turn for more information?

Sister Ships

Titanic was the second of three sister ships of the same design, *Olympic*, *Titanic* and *Brittanic*. The *Olympic* had sailed a year before *Titanic*, but following the grievous damage to her sistership, she was withdrawn from service over the winter of 1912–13 for safety modifications including newly fitted double sides and additional watertight bulkheads.

In the *Year Book of Wireless Telegraphy and Telephony* for 1913[2], there

Wireless Equipment of the 'Titanic'

(from The Marconigraph, *May 1912)*

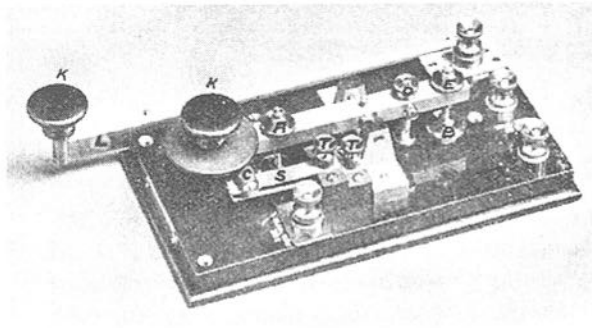
The wireless equipment of the 'Titanic' was the most powerful possessed by any vessel of the mercantile marine, and only equalled by that of the 'Olympic'. Its generating plant consisted of a 5kW motor-generator set, yielding current at 300 volts 60 cycles. The motor of the set was fed at 110 volts DC from the ship's lighting circuit, normally supplied from steam-driven sets; while in addition, an independent oil-engine set was installed on the top deck, and a battery of accumulators was also provided as a stand-by.

The alternator of the motor-generator set was connected to the primary of an air-core transformer, and the condenser consisted of oil-immersed glass plates. To eliminate as far as possible the spark-gap and its consequent resistance, which, as is well known, is the principal cause of the damping of the waves in a transmitting circuit, the ordinary Marconi rotary disc discharger was used. This is driven off the shaft of the motor-generator. The guaranteed working range of the equipment was 250 miles under any atmospheric conditions, but actually communication could be kept up to about 400 miles, while at night the range was often increased up to about 2000 miles.

The aerial was supported by two masts, 200ft high, stepped 600ft apart, and had a mean height of 170ft. It was of the twin-T type [*], and was used for the double purpose of transmitting and receiving. The earth connection was made by insulated cable to convenient points on the hull of the vessel.

The receiver was the Marconi standard magnetic travelling band detector used in conjunction with their multiple tuner, providing for reception of all waves between 100 and 2500 metres. The multiple tuner was calibrated to permit of the instrument being set to any prearranged wave-length, and further to be provided with a change switch to permit of instantaneous change of the circuit from a highly-syntonised tuned condition to an untuned condition (for stand-by) especially devised for picking up incoming signals of widely different wave-lengths. By reason of its robust nature the magnetic detector could be employed permanently connected to the transmitting aerial, thus dispensing with all mechanical change over switching arrangements.

* *As evidenced by un-retouched photos of the* Titanic, *the aerial was actually a 4-wire 'T' type. – Ed.*



Manipulating Key
A - Contact adjusting screw. B - Back stop. C - Ebonite cam for adjusting short-circuit contacts. D - Spring adjusting screw. E - Back adjusting screw. K - Ebonite knobs. L - Side lever. S - Telephone short circuiting springs. T - Short circuiting terminals

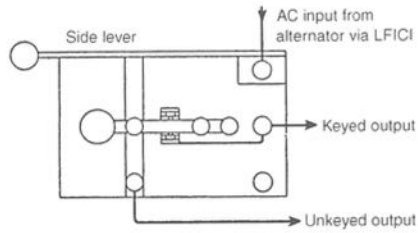


Fig. 1 - Manipulating key connections (see also Fig. 2)

is a photograph which is captioned 'The Operator's Room on a liner, showing the Receiving Apparatus for a 5kW station.' Although the ship concerned is not identified, I am very much of the opinion that it is the *Olympic*. The photograph there clearly shows a pair of two-lever keys (one presumably for the induction-coil emergency transmitter) plus a double magnetic key.

In other reference books of that era, every Marconi-equipped ship-station, as well as shore-based schools and demonstration rooms, are without exception shown in photographs as being fitted with the same type of key, although in the lower-power cargo-ship installations there is usually only one key and the basic single magnetic key.

It therefore seems fairly safe, in the absence of evidence to the contrary, to assume that this two-lever key was the type fitted in *Titanic*, and it remained the standard Marconi key until it was superseded by the original model of the Type 365 series in the 1930s.

The Keys

Descriptions of the key and the magnetic keys, together with drawings and photographs, appear in early editions of Hawkhead and Dowsett's *Handbook of Technical Instruction for Wireless Telegraphists*[3], that essential reference work for the seagoing wirelessman. The various illustrations have the salient parts identified by means of letters, which are explained in their captions and in the text. Unfortunately, the authors chose to use different letters to identify the same parts in different drawings. This, together with associated text being fragmented and spread over more than one page, has until recently left me in a state of total confusion, with a feeling that large parts of the description had been left out.

It was only when I acquired a copy of the 4th Edition of the same book, edited by H.M. Dowsett alone[4], which has a slightly different layout of text and drawings, that I came to comprehend the function of the side lever on the

manipulating key, and the purpose of the so-called magnetic key.

The Manipulating Key

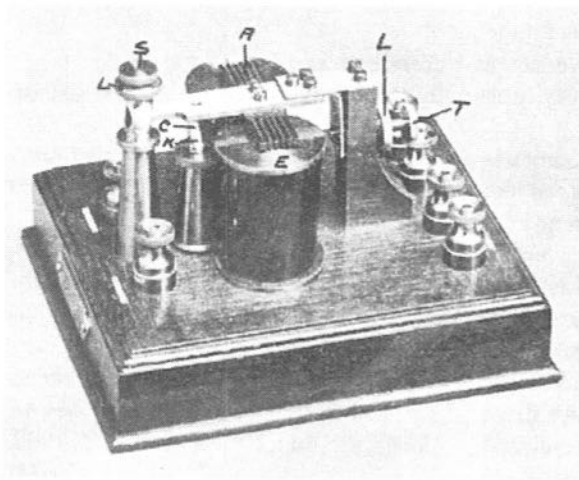
What I have so far called the two-lever key (see photo, left) was referred to as The Manipulating Key, without benefit of any type or model number. The second lever, mounted on the left-hand side of the key, is simply a switch which was wired in series with the supply from the alternator, to provide a rapid means of shut-down of the transmitter in an emergency. Apart from this feature, it appears to be a perfectly ordinary Morse key.

The Magnetic Key

I had always assumed that the item in early installations called a 'Magnetic Key' was simply a keying relay, a predecessor to the Marconi Type 556 Send-Receive Magnetic Relay *(see back cover of MM36)* which was a standard fitting in the 1930s. In fact it is rather more complicated than that, being an early electromechanical version of the semiconductor device we now know as a 'zero-voltage switch'. Why is the magnetic key used?

Keying took place in the AC feed from the motor-alternator set to the transmitter high-voltage transformer. A typical 'small-ship' transmitter would be rated at 1½kW (that's in terms of power drawn from the supply mains). If the manipulating key was used to key the transmitter directly, the instant at which the key was released by the operator could occur at any point in the AC cycle. If that happened at a part of the AC cycle where substantial power was passing, the resulting sparking at the key contacts would soon lead to failure or unreliable operation.

The magnetic key provided a means of ensuring that the keying circuit was opened only when the AC cycle was very close to zero volts. It did so by providing a 'hold-in' contact in parallel with the contact on the manipulating key. The simplified circuit of **Fig. 2** shows



Single Magnetic Key
A - Slotted armature.
C - Armature contact.
E - Electromagnet bobbins.
K - Pillar contact.
L - Lock nut.
S - Adjusting screw for armature play.
T - Adjusting screw for tension of spring

Photos from Handbook of Technical Instruction for Wireless Telegraphists, *2nd Edn*

the arrangement, with the magnetic key coil in series with the AC supply. When the manipulating key is released, the parallel hold-in contact on the magnetic key is still closed, so there is very little sparking between the manipulating key contacts. The magnetic key will be held in until the current next falls to zero (100 to 200 times per second with a 50 or 60Hz alternator output), whereupon it will naturally release, and its contacts will open with very little sparking.

The component labelled LFICI – low frequency iron-cored inductance – is a tapped choke whose value could be adjusted in the range 500µH to 10mH to bring the low frequency side of the transmitter circuit into resonance with the alternating current frequency.

Double Magnetic Key

In larger ships, such as the *Titanic* and *Olympic*, a more powerful transmitter was fitted, rated at 5kW input. This required a higher voltage from the motor-alternator – 300V or more – and to put this on the manipulating key contacts was felt to be too dangerous for the operator. So for this higher-power set, a so-called Double Magnetic Key was installed.

In the double magnetic key, an auxiliary relay is interposed between the manipulating key and the magnetic key, and it is the supply to this relay which is controlled by the operator and his manipulating key (see **Fig. 3**). The auxiliary relay supply is taken from a low voltage DC source, which can be the 110V or 220V ship's mains which drive the motor-alternator. The two coil and contact assemblies were mounted side

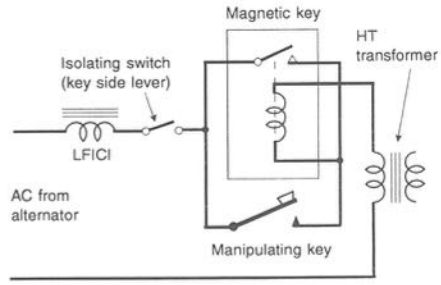


Fig. 2 (above) - Simplified keying circuit using the Single Magnetic Key

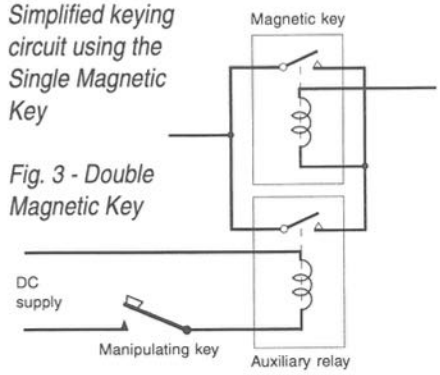


Fig. 3 - Double Magnetic Key

by side on a common baseboard, which was usually installed on the bench-top immediately behind the manipulating key or keys.

References

1. Robert Wall, *Ocean Liners*, Quarto Publishing Ltd, 1977.
2. *Year Book of Wireless Telegraphy and Telephony - 1913*, Marconi Press Agency Ltd.
3. J.C. Hawkhead and H.M. Dowsett, *Handbook of Technical Instruction for Wireless Telegraphists*, 2nd Edn, The Wireless Press Ltd, 1915.
4. H.M. Dowsett, *Handbook of Technical Instruction for Wireless Telegraphists*, 4th Edn, Iliffe & Sons Ltd, 1930.

MM

Morse Learning Methods

Part 1 – 1869 to 1902

by Tony Smith

THERE HAVE BEEN many ingenious methods of learning Morse over the years, ranging from the very simple to the quite complicated. Many reflect the conventional methods of their time, learning from printed images, or by means of mnemonics. They obviously worked, but they were not the best way of learning. The need to associate mnemonics in the mind with particular signals gets in the way of instant recognition as speed increases, and the mnemonics need to be consciously forgotten before further progress can be made.

British Post Office, 1869

The earliest example of this type which I have found so far, is that used by the British Post Office when, following nationalisation of the telegraphs, a decision was made to develop the use of Morse. Many telegraphists who previously used other systems were then required to master the code, mainly for use on the single needle telegraph.

John Cook, MA, describes the Post Office method in *Magnetism and Electricity* (Chambers' Elementary Science Manuals), published 1883, as follows:

'When the British Post Office, at the end of 1869, had to provide for the instruction of several thousand telegraphists, an ingenious grouping of the signs, accompanied by mnemonic phrases, was prepared. The student desiring to learn the masterpiece of cryptography invented by Professor Morse cannot do better than adopt those groups, which are given below:'

Group 1 (all dots)

·	E, Earwigs
··	I, infest
···	S, summer
····	H, houses

Group 2 (all dashes)

–	T, Turnips
––	M, make
–––	O, oxen
––––	Ch, cheerful

Group 3 (dots and dashes)

·–	A, A
·––	W, wet
·–––	J, jacket's
··–	U, uncomfortable
···–	V, very!

Group 4 (dashes and dots)

–·	N, No
–··	D, difficulty
–···	B, baffles
––·	G, great
––··	Z, zeal

Group 5 (dot, dash, dot, etc.)

·–·	R, Remember!
·–··	L, law
·––·	P, preserves
···–·	F, freedom

Group 6 (dash, dot, dash, etc.)

–·–	K, Kindness
–·–·	C, conciliates
–·––	Y, youth
–··–	X, extremely
––·–	Q, quickly

Culley, 1878

A similar, but not identical, system is noted in *A Handbook of Practical Telegraphy* (7th edition), 1878, by R.S. Culley, Engineer-in-Chief of the Post Office Telegraph Department. This again uses 'earwigs infest summer houses' and 'turnips make oxen' for letters consisting only of dots or dashes. (Note that by this date CH is no longer included in the alphabet). In other cases, the letter is represented by a word or sentence (commencing with the letter itself) of long and short syllables corresponding with the dots and dashes of the signal representing the letter.

Bunnell Students' Manual 1884

The full title of this publication is *Students' Manual for the Practical Instruction of Learners of Telegraphy.*

Culley, 1878

	Code.	Aid to Memory.
A	– —	˘al¯arm.
B	— – – –	b¯eautifully˘.
C	— – — –	¯circumst¯antial˘.
D	— – –	d¯omini˘e.
E	–	*Earwigs.*
F	– – — –	˘fili˘bust¯er.
G	— — –	gl¯assgr¯ind˘er.
H	– – – –	*houses.*
I	– –	*infest.*
J	– — — —	˘japan ¯varnish.
K	— – —	k¯iss ˘me qu¯ick.
L	– — – –	leg˘it¯imate.
M	— —	*make.*
N	— –	n¯imb˘le.
O	— — —	*oxen.*
P	– — – –	˘pronounce pl¯ainly˘.
Q	— — – —	¡u¯ick, qu¯ench the f¯ire.
R	– — –	˘rece¯iver.
S	– – –	*summer.*
T	—	*turnips.*
U	– – —	˘un˘attached.
V	– – – —	˘van˘ity f¯air.
W	– – —	˘we l¯ove pl¯ay.
X	— – – —	¯excell˘ent b¯eer.
Y	— – — —	¯you ˘al¯arm all.
Z	— — – –	z¯inc b¯att˘ery˘.

It is described on its title page as a 'Manual of Telegraphy and Description of Instruments adapted for use on Private Telegraph Lines', and was published by J.H. Bunnell & Co., 112 Liberty Street, New York, 1884.

According to this manual, 'Any person, young or old, can learn Telegraphy, and become a good operator, but as a rule, the best time is between the ages of fifteen and twenty-five years ... In many cases, telegraph operators are enabled to combine other occupations in railway, express and mercantile business with that of telegraphy in such a way as to make their positions handsomely remunerative, and thus lead their own way into more important and profitable business'.

The instruction given relates to the use of American Morse with key and sounder, and after memorising the code, and setting up the Instruments and gravity battery as described in the booklet, the student is recommended to practise in three ways:

I. Morse writing (sending) with the key and without a companion.

II. Combined Morse writing and reading with a companion student.

III. Practice in both Morse writing and reading of messages, social conversation, printed matter, and various exercises from the booklet, 'where the two or more persons practising are in separate rooms, or at a distance from each other in separate houses, and entirely dependent upon wires and instruments for their communication with each other.'

Hints on learning the code include noting that some symbols are the reverse of others, i.e., A & N, B & V, D & U, C & R, Q & X, Z and &, 'so if the formation of one ... be obtained, its reverse is easily mastered.'

'The first step is to memorise the alphabet, so that each character can be called to mind at will ... The period is the only punctuation mark in frequent use, and the student need not learn the others at first.'

'The beginner should be careful to form and space his letters correctly, as this will lead to a perfect style of sending'. Advice is given on how to hold the key properly (American style). 'Let the grasp upon the key be firm, but not rigid. Never allow the fingers or the thumb to leave the key, nor the elbow to leave the table. Avoid too much force, or too light a touch, and strive for a medium firm closing of the key'.

'Commence ... by making dots in succession at the rate of two every second, and increase the speed five-fold as skill is acquired. Continue to practise dots until 360 per minute can continue to be made with perfect clearness and regularity.'

When the dots have been mastered, 'begin with dashes at the rate of two in every three seconds, and gradually increase until 120 per minute can be made with perfect regularity'. Exercises are then to be practised which set out 'all dot' letters, 'dot and space' letters, 'dash letters', 'dots, with dash, in succession' letters, 'dash, with dots, in succession' letters, and 'dashes and dots in mixed combination'.

Apart from instructing learners, this intriguing 48-page booklet explains how the basic Morse telegraph works, contains examples of commercial messages,

the most frequently used abbreviations, line circuitry, and a number of nice illustrations of early instruments.

A high quality facsimile of this manual is available from Mr L.A. Bailey, 909 South Evergreen Avenue, Clearwater, Florida 34616-4239, USA, who originally produced them for members of the Morse Telegraph Club. The price is $8.00 (USA), or $12.00 (elsewhere), post-paid. This is basically cost price plus mailing, but please note that payment can only be accepted in US dollars.

'The Morse A.B.C', c.1896

This system was described in a small booklet that also included 'Abbreviated Instructions for Flag and Semaphore Signallers'. We are indebted to Maurice Small, G0HJC, and to Alan Williams, G3KSU, for copies of this material.

Devised by Major A.R. Willis, this method used the shapes of capital letters

	CODE Dot Dash	EXPLANATION.	Diagrams To be drawn and numbered thus—
A	• —	A is formed by a dot at the top of the letter (1) and (2) a thick dash, and completed by thin line as in diagram.	
B	— • • •	B may be formed by one down dash touched at three points (representing dots), by a curved line.	
C	— • — •	C Two C's are used: a curved dash makes the 1st letter, a full stop after it makes the dot, another curve dash and stop complete the diagram.	
D	— • •	D is formed by one down dash, touched at two points by curved line.	
E	•	E is used more than any other letter, therefore it is made the shortest and quickest to signal. A diagram is not required.	
F	• • — •	F may be almost formed by the two dots for the top bar, a down dash for the back, and a dot for the middle bar.	
G	— — •	G can be formed by two curved dashes for the back, and one dot for the cross bar.	
H	• • • •	H has four ends, which makes four points or dots.	
I	• •	I has two ends (two dots).	
J	• — — —	J is dotted in ordinary writing, and may be formed by one dot and three dashes.	
K	— • —	K may be formed (without its back), by two oblique dashes meeting at a point (giving the dot) in the centre.	
L	• — • •	L may be made with a dot at the top, a down dash for the back, and two dots for the foot.	
M	— —	M has two thick down dashes, one on each side.	

(see below) to implant the code on the memory, and claimed to teach Morse in half-an-hour. Describing one application, the booklet claims: 'It is quite easy to signal clearly without the aid of any apparatus other than a handkerchief or even the hand ... That Morse is an amusing study is evident from the fact that numbers of 'Morse Diagrams' have been purchased and given to patients in London Hospitals, who easily learn the code, and pass the time by signalling to each other in the wards from bed to bed. Everyone should learn Morse.' Presumably, those patients would have had no trouble in passing the amateur Morse test!

Published by Gale & Polden, London, and Wilding & Son, Shrewsbury, the sixth edition (undated) cost one shilling (1/-). A note on the first page says 'Examples of these diagrams were included in the *Army Signalling Manual, 1896*, by permission of the Copyright holder.'

	CODE Dot Dash	EXPLANATION.	Diagrams To be drawn and numbered thus—
N	— •	N Draw first a thick dash followed by a dot, then complete the the letter with fine line.	
O	— — —	O made by three curved dashes (the circumference equals three times the diameter).	
P	• — — •	P a dot at the top, a down dash for the back, a curved dash for the loop, which is finished with a dot.	
Q	— — • —	Q the body is made of three dashes like the O, but the tail must be formed by a dot before the last dash.	
R	• — •	R is made (disregarding the back), with a dot, a long curved dash and a dot.	
S	• • •	S make three dots in a vertical line, and form the letter with a fine curved line.	
T	—	T the peculiarity of the letter is its cross top, which gives one dash.	
U	• • —	U has two ends (representing dots), connected by a continuous line, giving the dash.	
V	• • • —	V has three ends (representing dots), connected by a continuous line, giving the dash.	
W	• — —	W when written, consists of a short flourish, representing a dot, and two heavy down strokes, giving dashes.	
X	— • • —	X when written, can be made with two curved dashes cutting each other at two points (the dots are inside).	
Y	— • — —	Y turn the letter upside down, when it clearly shows a dash, dot, and two dashes.	
Z	— — • •	Z the first two strokes of the Z gives the two dashes, two dots form the foot.	

The Audible Alphabet System 1902

This system was described in Theo A. Edison's book, *Telegraphy Self-Taught*, published by Frederick J. Drake & Co., of Chicago, in 1902, and was available from that company. It involved feeding a perforated tape between electrical terminals in circuit with a telegraph sounder. A number of tapes or 'records' were available, each having a different arrangement of letters, punctuation, numerals and words.

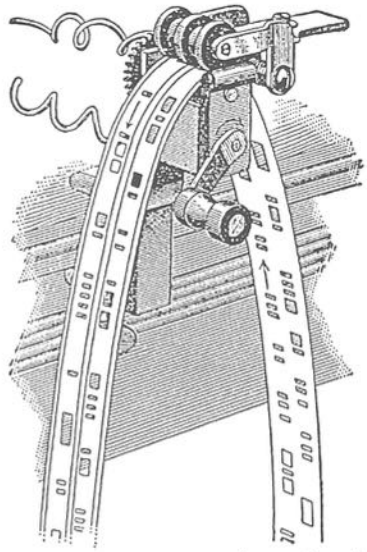
The book points out that as the ordinary speed of telegraphic messages is about twenty-five words a minute, the operator has to read 125 letters in 60 seconds, and 'it is not the speed at which the letter is sounded that perplexes the learner, but the rapid succession in which they follow each other.'

The principle feature of the Audible Alphabet, therefore, was the same as that of today's Farnsworth method, a graduation in the intervals between the letters. 'By beginning with a record in which the characters are widely separated and then changing to others with less and less intervals, the student gradually reaches the one having normal telegraph spacing'.

The transmitter was geared to the natural rate 'at which practically every one will turn the crank' and from the beginning, it was claimed, 'the learner will hear each letter sounded at ordinary telegraphic speed; the interval for the accommodation of the hesitating ear being between the letters'.

The relative values of the (American) Morse code were stated to be as follows: The dot, 1 unit; The dash, 3 units; The long dash (letter L or figure

THE
A. A. TRANSMITTER.



Can be used with any telegraph outfit.

THE
A. A. TRANSMITTER.

Connected with a telegraph instrument.

0), 6 units; The space, 1 unit; The space employed in the spaced letters, 2 units; The space separating the letters of a word, 3 units; The space separating words, 6 units.

The characters in the Audible Alphabet tapes were perforated to correspond to these units, but the spaces separating the characters varied from 6 units, the widest spacing, to 3 units, the normal telegraph spacing, and word spacing varied from 8 units maximum to 6 units normal.

It was necessary to know the Morse symbols before beginning this course, which was intended to improve familiarity and speed. Six records (tapes) were provided, with double perforated tracks and with gradually reducing spacing.

The first two tapes, containing mixed letters and punctuation, were joined at their ends to make a continuous loop and the tapes could be reversed to provide two further tracks. Record 3 gave practice with numerals and was also continuous but could not be reversed.

Record 4 provided 200 different words of three letters each and 200 words selected so that there were 8 words beginning with every letter of the alphabet except X, which was found a number of times within the words. This tape was over 19 feet long and was not joined at the ends.

Record 5 provided a further 400 words of various lengths and the unjoined tape was over 20 feet long. Record 6, 25 feet long and again unjoined, provided eight typical telegraph messages with regular telegraph spacing.

Once the learner could read everything without hesitation, the transmitter could be used to learn sending. 'The signals produced ... are absolutely correct and with a little practice no difficulty will be found in imitating them with the key.

'When you can form all the characters distinctly, begin to make words and numbers. Just as learning to read has aided you in sending, so sending will aid you in reading. Do not try to send fast but strive to make every character plain and distinct.'

The Omnigraph 1902

Charles E. Chinnock of Brooklyn, New York, filed a patent application for the Omnigraph on 20 January 1902, and a patent was granted to him on 25 October 1904 (US patent No. 773,374). This was a mechanical instrument driven by a hand crank or by a battery powered electric motor with speed control. When marketed it was driven by hand or by a clockwork mechanism. Its purpose was to actuate a circuit switch on and off in pre-arranged sequences of the Morse code, with the switch acting as a key for a Morse sounder circuit.

The 1902 Sears Roebuck catalogue offered what was probably the first version of the Omnigraph. This was a hand cranked instrument together with a key and sounder, all mounted on a polished mahogany base (battery not included), for $3.37.

It was a simple but ingenious concept which was an adaptation of Samuel F.B. Morse's very first transmitter (Correspondent) of 1837. Morse's instrument had pre-arranged saw-tooth projections, representing his code, which passed beneath a moveable lever,

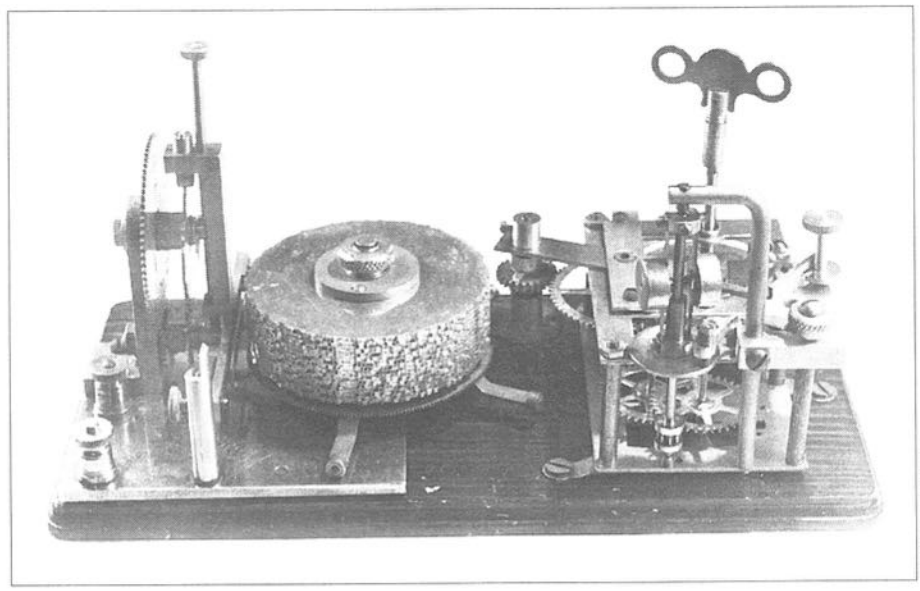


Photo: Tony Smith

The Omnigraph, patented 25 October 1904

activating an on/off signalling switch as the highs and lows of the saw-teeth passed through the machine.

The Omnigraph had similar saw-tooth projections cut around the rim of a metal disc performing exactly the same function. For learners there was a wide range of discs available, providing practice in American Morse or Continental code, including the alphabet in rotation; single letter discs; numerals; punctuation; railroad, commercial, and press systems; and interchangeable practice messages.

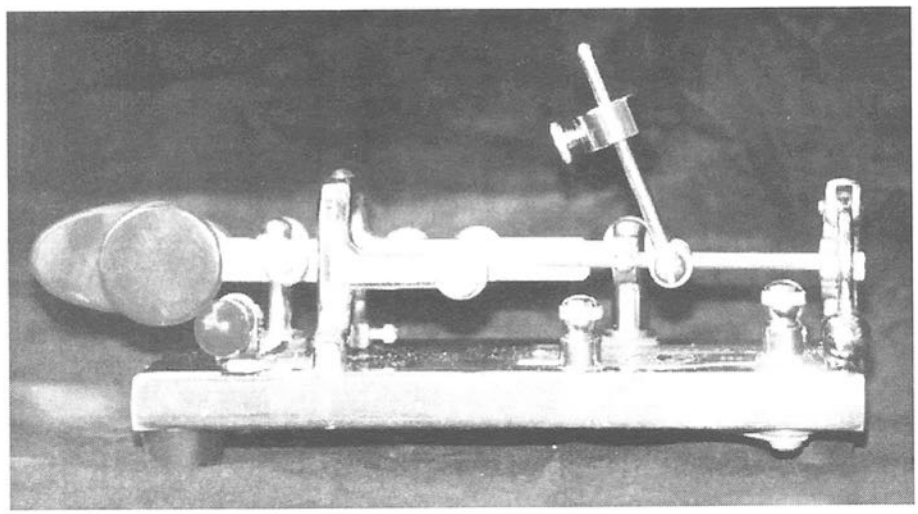
Several discs were mounted on top of each other, and the clever thing about the Omnigraph was that the mechanism could be set to pick out sections from each disc, one after the other. This meant that the learner did not have to listen to the same sequence of signals time after time with the possibility of memorising and anticipating what was coming. There is a fuller description of this system in MM22, p.28.

To be continued

'Golden Section' Key Plans

In MM48 (p.11) we thanked Dr Jim Lycett for his help in making these plans available once again. Dennis Goacher G3LLZ is also due a large vote of thanks in this matter. Apologies for omitting his name before.

Showcase

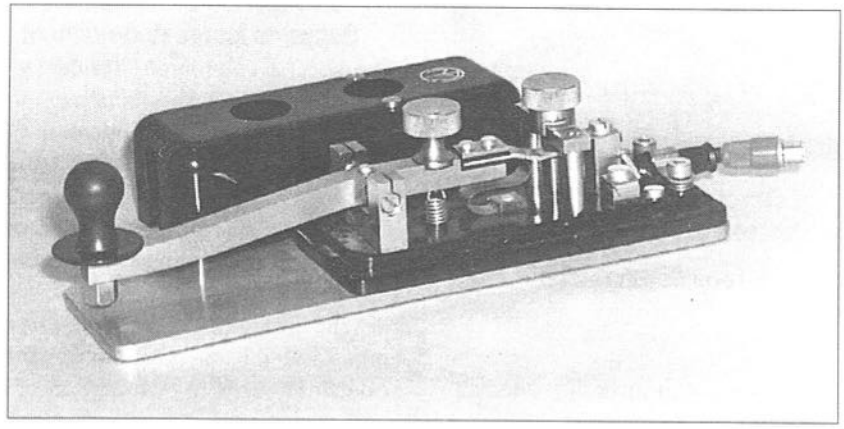


The Vari-Speed, a device which allows a speed-key operator to vary sending speed merely by pulling the weighted shaft back to increase dot vibrations. To decrease the speed, the operator pushes the shaft forward. The device was invented, and marketed briefly in the United States in 1954, by Joseph A. Hills, W8FY0, of Dayton, Ohio. The one shown here is owned by Howell Babbitt, W3IDO, of Tempe, Arizona, USA, who says it works fine.

In a magazine advertisement, Hills claimed that, 'It stays in position. You don't have to slide anything nor fool with any thumbscrews. A flick of your finger changes speed adjustments. (For example, from 18 wpm to 30 wpm.)' Hills sold his Vari-Speed for a mere $1.50, 'postpaid anywhere in the U.S.' A copy of his advertisement appears on page 24 of Tom French's Introduction to Key Collecting

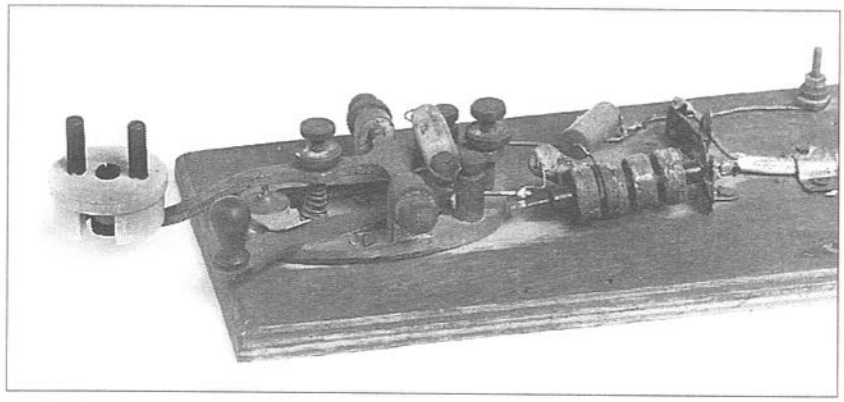
Information/Photo: Richard L. Thomas, KB7BAD

Featuring keys and other collectors' items of telegraphic interest.
If anyone can add to the information given please contact
Tony Smith, 13 Morley Road. Sheringham, Norfolk NR26 8JE



Danish MP-key, made by M.P. Pedersen Radio Co., probably in the 1950s.
Its owner says 'I used one on Danish merchant ships in the 1960s.
It is a very solid good key.'

Photo/Collection: Jens Nohns OZ1CAR



Yes! that really is part of a 2-pin mains plug which someone has pressed into service as a replacement knob on this rusty old key!
It was discovered at the bottom of a cardboard box full of old valves and assorted bits and pieces which I was given at a radio rally a couple of years ago.
As might be expected, it is most uncomfortable to use, but I like to keep it as an example of the terrible things that people can do – I call it my horror key!

Photo/Collection: Geoff Arnold G3GSR

Special News Report

Developments in the Morse Test Controversy

by Tony Smith G4FAI

IARU Region 1 Supports 'No Change'

The question of retaining the amateur Morse test as an international requirement was discussed by the Common Licence Group (CLG) at the 1996 Region 1 Conference of the International Amateur Radio Union.

Part of the CLG report reads as follows:

'(g) Morse Code (S25.5)

The debate on this issue was lively and while there was a small number of contrary views it was agreed that the requirement for Morse code should remain a treaty obligation.

To enable this to continue it is essential that IARU provide administrations with a reasoned argument for its retention. Member Societies are requested to address this issue and submit their proposals to FASC.

It was made quite clear that it will not be easy to maintain the status quo of S25.5 at WRC as ITU tends to reach decisions by consensus rather than by simple voting procedures.

The Committee proposed no change to S25.5.'

The report was accepted by the Conference.

ARRL WRC-99 Committee Supports Morse Requirement

'The special committee created by the ARRL to study issues relating to the 1999 World Radiocommunication Conference (WRC-99) has recommended that the ARRL Board of Directors not support changing the treaty requirement for Morse code testing to operate below 30MHz.

'The committee report contains recommended ARRL positions regarding possible changes in Article S25 of the international radio regulations. Consistent with the results of a survey of ARRL members, the committee recommended no change in the existing treaty obligation that administrations test prospective amateur licensees on their Morse code ability before authorizing them to operate below 30MHz. The committee did support changes to Article S25 that would:

- Eliminate the so-called "banned countries" list
- Establish that providing communications in the event of natural disasters is a normal and desirable part of the international service provided by radio amateurs
- Reduce restrictions on international communications on behalf of third parties
- Aid in the establishment of an "International Amateur Permit." '

(Extract from the ARRL Letter, *published by the American Radio Relay League, 20 December 1996)*

ARRL Board Backs WRC-99 Committee

'The ARRL Board of Directors met in

annual session, January 17 and 18, 1997, at Albuquerque, New Mexico. Here is (an extract from) a summary of the meeting highlights:

'Responding to survey results that show that the majority of members favor retention of Morse code for HF operating privileges as an international treaty obligation, the Board decided that the ARRL will not support changing the existing treaty requirement – an issue on the WRC-99 agenda. The Board also accepted other committee recommendations regarding the international rules that govern the amateur and amateur-satellite services.'

(Extract from the ARRL Letter, *published by the American Radio Relay League, 24 January 1997)*

Background to Discussion on the Morse Test

In 1994 the IARU's CW Ad Hoc Committee, concluded that it remains essential for radio amateurs using the bands below 30MHz to be able to intercommunicate, without regard to equipment or language barriers, to ensure the orderly shared use of a limited resource.

The Ad Hoc Committee recommended that the status quo continue for the immediate future with no change to the existing ITU Radio Regulations. It did not rule out the possibility, however, that future technical developments may provide an alternative means for ensuring that amateur stations can intercommunicate, and become sufficiently universal to obviate the present requirement. *(A detailed summary of the 26-page report of the 1994 Committee appeared in MM38, p.14. – Ed.).*

The 1994 Committee found that 'At the present time, the Morse code is the only practical means of ensuring that all amateur stations possess this capability for intercommunication.'

The FASC report now under discussion, itself said 'If we could assess the desirability of retaining the provisions of S25.5 solely on the basis of amateur service requirements in 1996, we might well conclude that little has changed since 1994 and the provision, therefore, should be retained.' (See MM46, p.19).

It went on to say: 'It is unrealistic to expect that Article S25, having been placed on the agenda for WRC-99, will again be reviewed at another conference in the foreseeable future', and on that basis alone it concluded that S25.5 should be removed as a treaty obligation.

According to reports received by *MM* it appears that, despite the FASC conclusion, a 'no change' attitude is being taken at most venues where the Morse test requirement is discussed, and a similar position is expected to emerge from the IARU Region 3 Conference in Beijing in 1997.

Re-state the Case!

In the light of the Region 1 Common Licence Group's conclusions (above), supporters of 'no-change' should perhaps now refine and re-state to their national administrations the advantages they see in retaining the Morse test as an international requirement. They might also remind the FASC of the recommendations of the 1994 IARU CW Ad Hoc Committee and urge it to revise its own conclusion in the light of those

recommendations and the evident increasing support for them in the international amateur radio community.

Simply having the opportunity to discuss the radio regulations at the 1999 World Radio conference is not, in itself, an argument to discard the 1994 recommendations and remove S25.5 as a treaty obligation.

The 1994 recommendations were contained in 24 pages of well-argued discussion. The 1996 FASC conclusion was contained in four short paragraphs based on a premise unconnected with any of the arguments for or against retention of the Morse qualification as an international licensing requirement.

This cannot be the right way to approach a matter of such importance to worldwide amateur radio. However, both the IARU Region 1 Conference and the ARRL approached it more rationally. Interestingly, last year's RSGB survey also resulted in a large majority in favour of no-change, although at the time of writing the RSGB, unlike the ARRL, has not yet announced its policy on this matter.

New or further submissions to the FASC may be sent as follows:

By mail:
IARU FASC, c/o IARU International Secretariat, PO Box 310905, Newington, CT 06131-0905, USA.

By FAX:
+1 860 594-0259 (label 'To IARU FASC, c/o IARU International Secretariat').

By electronic mail:
iaru@iaru.org (Subject: "To IARU FASC").

Short Break

How to Read Ads

A Translation table for Beginners

- 'Serious collector' = 'rich collector'
- 'Connoisseur' = 'VERY rich collector'
- 'Time waster' = 'collector who walks away from overpriced item'
- 'Collectable' = 'overpriced'
- 'Highly collectable' = 'grossly overpriced'
- 'Easily restorable' = 'uneconomic to restore'
- 'For display only' = 'lethal' or 'internals removed'
- 'C.1930' = 'C.1950'
- 'Mint condition' = 'the seller has two and this is the one he isn't keeping'
- 'Not tested' = 'the power transformer is missing'
- 'Good parts piece' = 'resembles something from an archaeological dig'
- 'Refinished' = looks like someone dipped a live Chihuahua in shoe polish and dragged it across the top'
- 'First reasonable offer' = 'waiting for one or the Rockefellers to call'
- 'Thinning out my collection' = 'decided I could sell the junk in my garage that I was going to throw away'
- 'Needs restoration' = 'good project for a prisoner with a life sentence.'

(Reprinted, with permission, from the Puget Sound Amateur Radio Association's Newsletter, Horn of Plenty, *October 1996. Submitted by Lynn Burlingame N7CFO.)*

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by Tom French W1IMQ

The author says that it is essentially a whole new book, based almost entirely on research undertaken after publication of the 1st edition in 1990, and with almost 50% more pages.

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The dates of introduction have been revised for some of the Vibroplex key models, based on additional research and on information provided through the generosity of fellow collectors.

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QRS with a Semi-Automatic Key

Reining in the Bug

by Paul H. Bock, Jr. K4MSG

MOST HAMS regard the semi-automatic telegraph key or 'bug' as a high-speed key, unsuited for leisurely rag-chewing at 15 wpm or less. In fact, some hams complain about the relatively high minimum speed of a bug with comments such as 'I'd like to use a bug, but my normal speed isn't high enough and I can't slow my bug down below twenty words-per-minute.' As a result, many either switch to an electronic keyer (because it has a widely-variable speed range which is adjusted simply by turning a knob) or stick to a straight key for lower-speed operation.

Being a bug user, I was motivated to pursue a means of slowing down bugs because I wanted to be able to QRS (send slower) without switching to a straight key. It also occurred to me that if a bug could be slowed down to around 15 wpm it would enable beginners to master the instrument more easily than at 20+ wpm. Encouraging newcomers to learn to use a bug, I reasoned, would be a good way to ensure its survival.

This article addresses the issue of bug minimum speed and my attempts to control it. It is a 'how-to' article, but also offers historical and mechanical perspectives and, I hope, will serve as an incentive to Morse lovers to master a bug and put it to regular use.

Historical Background

When Horace G. Martin invented the Autoplex and Vibroplex at the beginning of the twentieth century, he did so out of a desire to provide the professional telegrapher with a device which would make sending both easier and faster, thereby reducing the strain on the operator's arm and preventing the onset of the dreaded 'telegrapher's paralysis' which crippled so many skilled operators.

A common belief is that Martin was only trying to make a high-speed device, but the following excerpt from his Autoplex patent application (US Patent No. 732,648 issued 30 June 1903) implies a goal that went beyond simply enabling operators to send faster (emphasis added):

'In order to enable operators to greatly increase their speed and with less consumption of nerve forces, *and to enable operators to send at an ordinary rate of speed very much easier than has heretofore been possible*, and to enable operators afflicted with telegrapher's paralysis and who are practically unable to send with an ordinary Morse key to do good work, I have devised the novel telegraphic transmitter ...'

It is worth remembering that this was the wording in Martin's Autoplex patent, although the content of this patent was referred to in later patents to support the basis for Martin's other inventions. The Autoplex was an electro-mechanical device and probably capable of fairly slow-speed operation, but it was expensive for the time ($25.00), tricky to adjust, and required its own battery circuit.

These shortcomings led Martin to seek a simpler solution, and that solution was the purely mechanical Vibroplex, introduced in 1904, with its weighted vibrating arm supported on a leaf mainspring. And it is in this particular design feature that a clue is found which might explain why many people believe that Martin was only interested in high-speed operation.

Mechanical Considerations

The operating characteristics of a Vibroplex, particularly the available speed range, are significantly affected by the physical characteristics (primarily the thickness) of the leaf mainspring. The thicker the mainspring the stiffer it is, and the stiffer it is the faster it vibrates for any given combination of pendulum arm length and weight. This means that the minimum speed obtainable with a Vibroplex bug is basically set by the thickness of the mainspring, and that speed is rarely less than 20 wpm.

To make matters worse, Vibroplex never consistently stuck to a single thickness for the mainspring. I have measured mainspring thicknesses on Originals, Lightning Bugs, Blue Racers, Champions, Juniors and Presentations, covering a time span from 1926 to 1996, and the range of thicknesses varies from as low as 0.0125in to as high as 0.018in and is not necessarily consistent by time period or by model. This explains, for example, why a 1943 Blue Racer has a noticeably higher minimum speed than a 1962 Blue Racer, i.e., because it has a thicker mainspring.

All of this suggests that the Vibroplex may have been a 'compromise' in Horace Martin's quest to create a universal, easy-to-use key which would replace the ubiquitous straight Morse key and mark the end of telegrapher's paralysis as a threat to operators.

The Autoplex may have come closer to Martin's original goal, but because of technological limitations at the time of its introduction, coupled with the ready acceptance of the simpler, lower-cost Vibroplex, there was little incentive to revisit the latter's design so as to facilitate its use at really low speeds.

Hence, Martin's basic vibrating-pendulum implementation has stayed virtually the same to the present day, perhaps leading those unfamiliar with the Autoplex and its patent wording to incorrectly conclude that Horace Martin was, to use the modern vernacular term, a 'speed merchant.'

Slowing It Down

A bug can be slowed down by replacing or altering the mainspring, but the former isn't really a viable option owing to the mainspring being riveted in place. The latter has been tried, usually by filing a V-shaped notch, but this creates a stress point and has been known to cause a mainspring to snap in half.

Fellow Vibroplex collector Randy

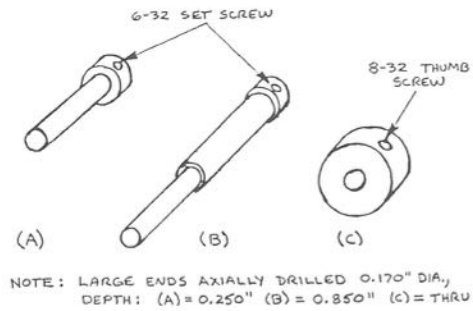
Cole, KN6W, has a bug in his collection with a curved notch in the mainspring, which seems a more sensible approach. Nevertheless, the thought of permanently altering a mainspring is anathema to a collector, so I preferred to investigate the other two methods: Load it with extra weight, or lengthen the pendulum arm. Loading it with extra weight can help, but if the pendulum arm length is unchanged the bug may become sluggish and lose its crispness. Changing the pendulum arm length, however, enables one to slow the bug considerably while still retaining clarity and avoiding a 'mushy' response.

The idea of lengthening the pendulum arm was first suggested to me by well-known key collector and author Tom French, W1IMQ, in an exchange of letters in which we discussed mainspring thickness. Tom pointed out that world-champion radio operator Ted McElroy had offered an extension on at least one of his McElroy bug models which screwed into a threaded hole in the end of the pendulum arm.

Since I knew of no commercially-available product designed for this application, and inspired by Tom's suggestion, I set about devising a suitable pendulum arm extension for the round-shaft versions of Vibroplex – the Original, Presentation, Blue Racer, and Junior.

My initial attempt was to use the simple device depicted in **Fig. 1(a)**, but it met with only limited success for two reasons. First, I found that the shaft diameters varied depending on how old a particular bug was, with newer bugs having slightly larger shafts. This meant that drilling the shaft hole large enough for the newest bugs made the fit 'sloppy' on older ones, causing this adapter (with its shallow, 0.250in hole depth) to angle noticeably when the setscrew was tightened. Second, and far more serious, was the fact that some of the older bugs had very little free shaft extending beyond the damper wheel – 1/8in on a 1962 Blue Racer, for example – with the result that the extension was unusable on many bugs, particularly older ones.

These problems led to the development of the device shown in **Fig. 1(b)**, which features a fairly long centre section



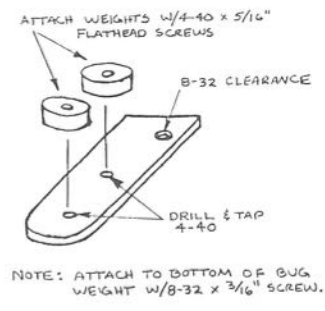


Fig. 1 (left) - Round-shaft Slo-Bugs and speed weight
Fig. 2 (right) - Flat-shaft Slo-Bug and speed weights

that has been drilled out to accommodate any amount of free shaft up to about 7/16in beyond the damper wheel (a number based on the newest Vibroplex bugs).

When installed on the shaft with the setscrew collar mounted just inside the damper wheel (that is, on the side nearest the thumb piece end of the instrument) the appearance is the same regardless of shaft diameter with no obvious angular deviation, and it looks like a extension of the pendulum arm. Since the damper wheel now rests on the centre section of the device instead of directly on the shaft the pendulum arm stop screws and fixed dot contact must be readjusted, but the amount of readjustment is small.

My generic name for these extension devices is 'Slo-Bug,' and since the device in Fig. 1(a) was initially referred to as 'Slo-Bug Model O,' for 'Original,' I named the device in Fig. 1(b) the 'Slo-Bug Model B' since it was the short shaft on the Blue Racer which led to its creation. **Figure 1(c)** illustrates a suitable companion weight which is a clone of the smallest Vibroplex round weight.

I should mention that while a standard sized round-shaft Vibroplex (Original or Presentation) can be carried in the newer, moulded Vibroplex carrying case without removing the Slo-Bug, the older, end-door case cannot be used without first removing the extension.

Operation with Slo-Bug

The round-shaft versions of Slo-Bug have been tested on a variety of bugs. Of particular interest to me was the performance when used with a 1996 Original which has a 0.018in thick mainspring. Using the Slo-Bug Model B and two extra weights, with a standard large Vibroplex weight on the main shaft, I achieved the following approximate speed ranges by moving the regular weight back and forth:

Vibroplex bug only,
no extra weight: 23–35+ wpm
One extra weight: 18–22 wpm
Two extra weights: 14–17 wpm

Randy Buchanan, KF4FJH, tried the Model B with his 1965 Blue Racer and achieved his desired speed (15 wpm) by using no extra weights, but simply moving one of his two regular (small) weights to the Slo-Bug and leaving the other on the bug shaft. Tom French achieved the identical result with his early 1960s Blue Racer. It is therefore clear that the configuration for 'best results' can vary depending on the model of bug, so the need for some experimentation should be expected.

Slo-Bug for Flat-Shaft Bugs

The next problem I tackled was how to achieve a similar result with the flat-shaft Vibroplex bugs, sometimes referred to as 'assembled frame' models because the trunnion support is assembled from triangular plates and vertical posts rather than being machined from a single casting.

These include the Lightning Bug, Zephyr, and Champion, and the Vibroplex and Lionel versions of the US Army Signal Corps J-36 which were based on the Lightning Bug. In truth, I saw little need for altering the Champion because, unlike other Vibroplex models, it was always known for its low-speed ability (thanks to a flexible mainspring) and in fact had a reputation as a good 'beginner's bug.'

After a couple of false starts I finally settled on the design shown in **Fig. 2**, which I dubbed the Slo-Bug Model L. This device is mounted to the existing weight on a flat shaft bug by making use of the 8-32 thumbscrew hole which is actually drilled and threaded all the way through. A short nylon screw is used to attach the Slo-Bug to the underside of the weight using this hole. There are two additional weights on the Model L, as depicted in the sketch, which are removable.

After testing the Model L on three Lightning Bugs (1937, 1941, and 1944) and a Lionel-built J-36 (1944) I found that it has two features which actually make it superior to the round-shaft Slo-Bugs. First, it provides a much wider speed range from minimum to maximum. With both extra weights installed, I found that about 14–24 wpm was typical. With only one extra weight installed, and mounted in the position closest to the regular weight, the range was typically 18–28 wpm.

Second, since the Model L mounts to the regular speed weight it can easily be moved to a position inside the damper by simply moving the regular weight, which allows the bug to be carried in the old-style, end-door Vibroplex case without removing the Slo-Bug from the instrument.

Slo-Bug Construction

The two round-shaft versions of Slo-Bug were constructed by turning round brass rod in a lathe to the required dimensions. The Model O was turned from $^{3}/_{8}$in diameter stock, the Model B was from $^{5}/_{16}$in diameter material, and the speed weights were cut from $^{5}/_{8}$in diameter stock. The lathe is also a handy tool for precisely drilling the centre holes in both versions of round-shaft Slo-Bug and in the speed weight.

The Model L consists of two weights mounted to a length of $^{1}/_{16}$in thick, $^{1}/_{2}$in wide flat brass plate, and while the weights shown were made from $^{1}/_{2}$in diameter brass stock they could be fabricated from any suitable material at hand. This makes the Model L a little more 'home-brewable' since lathe work is not a necessity.

Conclusion

I hope that this article has been instructive and inspirational and will help motivate bug owners to dust off their instruments and begin using them, and to attempt their own Slo-Bug construction (or even to improve on the designs!).

Readers desiring advice on construction or assistance in obtaining a ready-made Slo-Bug may write to me at 38661 Pheasant Hill Lane, Hamilton, VA 20158, USA. Fully-dimensioned sketches and materials lists are available for a legal-size SASE with two units of US First Class postage. Readers outside the USA should send a self-addressed envelope minimum size 4 x 9 inches (100 x 230mm) plus 2 IRCs.

References

1. *The Vibroplex Company, Inc., 1890 to 1990*, William R. Holly, K1BH (The Vibroplex Company, Inc., Portland, ME, 1990)

2. *Vibroplex Collector's Guide* (First Edition), Tom French, W1IMQ (Artifax Books, Maynard, MA, 1990)

Review of the Slo-Bug

by Colin Waters G3TSS

Paul Bock sent* MM *a complete set of his Slo-Bugs for review. We asked bug collector Colin Waters to try them out on various keys in his collection, and the following is his report.

Models 'O' and 'B'

As an enthusiastic bug key user and collector, I was eager to try out Paul's 'Slo-Bug' units on some of the keys in my collection.

The most obvious candidates from the Vibroplex range to test them on were the 'Blue Racer' models. Whilst these excellent little bugs share the same superb feel as the larger 'Original' models, they are not a key for the faint-hearted. None of the four Blue Racers in my collection has a minimum speed of under 28 wpm in its standard form.

I tested both the 'O' and 'B' units on 1917, 1956 and 1960 models. I actually liked the 'O' unit best as no readjustments are needed, and I had no problem fitting the unit to the short shafts on these keys.

With one of the original Vibroplex weights fitted to the Slo-Bug and the other remaining on the original shaft I found the minimum speed came down to around 20 wpm, with the position of the inside weight having surprisingly little effect on the dot speed.

The 'B' unit reduces the speed even further as, of course, does the addition of one of Paul's extra speed weights, but I preferred the first combination as a compromise between speed and feel.

Model 'L'

My normal 'on-air' Vibroplex is a 1973 Lightning. While admitting these are excellent high-speed keys, I do believe that all the flat shaft Vibroplex models begin to show signs of 'mushy' dots at their slowest standard speeds. However, by adding very little weight they do slow down by a greater degree than the round shaft models.

I tested the Slo-Bug model 'L' on a 1932 'Lightning', a 1951 'Zephyr', 1948 and 1962 'Champions' as well as both Vibroplex and Lionel J-36 bugs (the latter having very consistent high-speed mainsprings).

Personally, with both weights fitted to the Slo-Bug I found the keys far too heavy to operate, but with a single weight in the position Paul suggests I produced identical speed figures to his. There was no sign of 'mushy' dots so the extra weight seemingly also improves the dot contact.

Advice for Newcomers

The flat shaft Vibroplex bugs are more forgiving than most others and I would certainly recommend newcomers to look for one of these bugs with a little extra weight to slow it down. They would be well advised to stay clear of the Blue Racer and Speed-X 510 models, regardless of their almost 'cult' status among would-be collectors.

I also recommend aspiring bug users to locate and read a copy of 'Behaviour of the Bug, Hints on How to Tame It' by G3NS in the February 1954 issue of *Short Wave Magazine. (Colin has provided us with a copy of this article and it will be reprinted in* MM *shortly, by kind permission of* SWM. *– Ed.)* ***MM***

Running Down the Battery

by Dr Gary Bold ZL1AN

WHEN OPERATING with my portable operating set-up on vacation recently, an interesting question arose. One beautiful mid-afternoon in late January I chanced across Bill, ZL1GQ on 40 metres, and we started an SSB QSO.

But old man 40 was in one of his grouchy afternoon moods, and my 20 watts into the mobile whip was only 4 and zero at Bill's place, although he had a fine signal at my beach QTH.

Well, that was no real problem. Bill is a Morseman from way back, so I simply plugged in the CMOS Super-keyer and sent MY overs on CW. The difference (as we knew it would be) was dramatic. Now, running exactly the same power, I was armchair copy.

Other Factors

Well, this is a well-known phenomenon, but the explanation is not as simple as some think. Bill didn't switch in the CW filter, so the audio bandwidth and, therefore, the noise, was the same – although the bandwidth CAN be narrowed for CW, to enhance things even further.

There are two other factors involved. Firstly, when a CW signal is on, it's at full power, whereas a voice signal has a mean power level 3–6 dB lower than this. Secondly, the CW-trained brain has only to listen for ONE frequency when receiving CW, and it's well known to psychologists that a SINGLE tone is perceivable at a much lower signal-to-noise ratio than a COMPLEX tone, such as a voice signal, where the signal power is spread over a BAND of frequencies.

Note, however, that I said a 'CW-trained brain'. You have to learn this. Many times, beginners have crouched beside me while I comfortably translated a weak CW signal to them, and afterwards confessed that they could hardly HEAR it, let alone READ it.

Computer Simulations

This is NOT being boastful, ALL experienced CW ops can do this, and some are much better at it than I am. The interesting question arose later, in another SSB round-table discussion when I was telling some blokes about this. Somebody asked "Well, does SSB or CW transmitting drain your battery faster?"

I have a definite opinion on this. When operating portable, I run the rig off a gel-cell, and I know that for the same CW and PEP output powers, the battery goes flat faster when I transmit CW than when I use SSB.

Nobody else had any definitive comments, so I decided to run some computer simulations when I got home. It's the average power that gobbles those amp-hours, not the peak power. So we need to estimate the average power for CW and voice modulation.

First, the CW signal. The average power is just the maximum power multiplied by the total time that the signal is ON (key-down), divided by the total time of the transmission. Up till now, I've guessed that this ratio (or duty cycle) would be about a half.

For an accurate estimate, it took 10 minutes to modify 'FSEND', my MSDOS ASCII-to-Morse practice program, to total the key-down and key-up periods in the Morse versions of text stored on disk files, and compute the resulting duty cycle.

Surprisingly Constant

For texts, I used some typical QSO exchanges, composed with my program QGEN, which generates the sort of over you hear nightly on 80 metres, with randomly generated callsigns, comments, reports, locations and names.

One such file I generated was: "ZL3XW de ZL2XR - ga James - name hr Ethel - ur rst 599 599 es QTH Kaikohe - rig hr is Kenwood TS510 running 110 w - ant is dipole - temp 18 deg es sunny - am self employed electronics contractor - bands improving after solar flare - hw James? ZL3XW de ZL2XR k".

This particular over would take 3 minutes at 16 wpm. Examining many such exchanges, I found the duty cycle to be surprisingly constant, always between 0.44 and 0.46, with a mean of 0.45. This is close to that of the 'standard word', PARIS, which has a duty cycle of 0.44. So my estimate of 0.5 was not bad.

This means, if your transmitter puts out 100 watts when the key is down, the average power consumed in a typical CW QSO is about 45 watts, and that's the rate at which it will drain a battery.

Marked Difference with SSB

Secondly, the SSB signal. Voice characteristics vary markedly, but the books tell us that the average power in a voice signal is typically a quarter to a half of the peak power, or about 25 to 50 watts for a 100 watt PEP transmitter – much the same as for a CW signal, maybe a little less.

But I observe a more marked difference than this, and estimate that the battery drains at nearly twice the rate on CW. I think the reason is the way in which I transmit.

Heatsink Hotter with CW

The estimates above compare what would happen if I'm Morsing or talking continuously. But a typical SSB QSO contains many gaps when even machine-gun mike-mouths like me pause to think between sentences.

I probably only mouth words for about half the time I have the mike button down. Try it. I doubt that any of us

can talk completely non-stop for three minutes!

However, in a CW QSO, I send continuously with few or no gaps. The information rate is lower, and there's plenty of time to formulate what I'm going to say next. I know that the rig's heatsink is also hotter at the end of a CW over than after an SSB over of the same length.

RTTY signals would make it even hotter, since the carrier is on all the time. What do you reckon? Has anybody else observed this? Write and tell us what you think.

CW in the Rain

I learnt another lesson when operating portable. My ATLAS 210X sits in the back of the Commodore station wagon with the tailgate up, and when it rains, I crawl right inside with it. During one storm, comfortably reclining in mid-QSO while the rain crashed down outside, my keying became increasingly erratic, and finally turned into a continuous iambic stream.

My first thought was that the CMOS Superkeyer had gone into the land of lost bits, but the problem was simpler than that. I set my paddle gaps as small as I can get them, and in the high humidity, moisture had condensed between both sets of contacts, turning them permanently on. Opening them up to about a millimetre fixed it, although the paddle then felt very clunky. Moral: Keep your powder and your paddles dry during storms.

(Extracted and adapted for MM *from Gary Bold's 'The Morseman' column in* Break-in, *journal of NZART, April 1995)*

Readers' ADs

WANTED

MECOGRAPH, to buy, or exchange for a Simplex Auto. Also wanted: Lucas lamp for Lamp Signalling Daylight set, similar to that shown on page 47 of MM48; and 150 ohm B.I. & H.C. Liverpool relay, or just the electro-magnets and fine adjustment gear for same. Ron McMullen, PO Box 188, Yass, NSW 2582, Australia.

MARCONI TYPE 365 key for 1950s replica ship's radio office. Iain Hill ZL2BJC, 29 Holdsworth Avenue, Upper Hutt, New Zealand.

TO BUY OR EXCHANGE, very old telegraphic items; also early Marconi equipment. Interesting items available for exchange (telegraphy, telephony, radio, physics...). Fons Vanden Berghen, Lenniksesteenweg 462/22, B-1500 Halle, Belgium. Tel: Day +32.16.38.27.21, evening: +32.2.356.05.56. Fax: +32.16.38.24.38. E-mail fovabe@telindus.be

BACK NUMBERS OF MM WANTED, in good condition, nrs 17 to 26, 28 to 30, and 33. C. Markie, 172 Daventry Road, Coventry, CV5 5HN.

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18 PAGE ILLUSTRATED LIST all kinds of telegraph related items surplus to my needs. $3.00 plus equivalent of 4 US stamps ($5.00 refund on $25 purchase). Dr. Joseph Jacobs, 5 Yorktown Place, Fort Salonga, NY 11768. Phone: 516-261-1576. Fax: 516-754-4616. E-mail: joekey@aol.com

BOOK, RAILROAD TELEGRAPHY AND THE RAILROAD (reviewed in MM48), events according to newspapers, trade magazines, etc., 1852-1913. First edition, soft cover, large format, 85 pg. $9.95 shipped first class mail USA. $14.95 (US funds only) shipped airmail Foreign. Also available, Morse photos/ephemera. Send SAE with appropriate postage funds for info and catalog. Wanted: S.F.B. Morse related papers, photos, postage stamps, etc., for work in progress. RWB/CG, 8 Little Fawn Drive, Shelton, CT 06484, USA.

MM Nos. 23 to 49, part bound (2 binders) £12. *Deep Sea Sparks* by Olive J. Carroll £7. *Signal!* by Captain Barrie Kent £7. *Watchers of the Waves* by Brian Faulkner £7. All vgc. Phone Terry Grice 0191-263 0043 (Tyne & Wear).

EXCHANGE

Martin Autoplex (2nd model, factory built) with wood carry case, for an equally uncommon WWII radio set, prefer Japanese navy or aircraft radio. Hue Miller, 250 So. 900E #4C, Salt Lake City, UT 84102, USA. E-mail: Ho4bart@aol.com

Your Letters

Readers' letters on any Morse subject are always welcome, but may be edited when space is limited. When more than one subject is covered, letters may be divided into single subjects in order to bring comments on various matters together for easy reference

Best Way to Morse Proficiency?

I enjoyed Roy Clarke's story 'The Code' (MM49, p.40) very much. It confirmed for me my feeling that a 5–6 wpm test for a novice licence is the best way forward for amateur CW. Many amateurs who have learned the code initially must have given up when faced with the need to then achieve a speed of 12 words per minute.

Speed increases much more pleasantly through actual QSOing. Someone who has passed the lower speed novice test can do this and the training process to reach the 12 wpm test becomes much less boring or troublesome. Through this process, the 12 wpm test then loses much of the nightmare quality and negative image that it has for ham newcomers.

In my view, the HF-CW-Novice licence is the optimum way to get as many as possible new CW enthusiasts onto the HF bands in the future. We certainly need every one we can get.

Unfortunately, the new Dutch novice licence does not permit access to HF CW. However, our PD0 and PD1 novice stations can now use A1A mode on 2m (between 144.110 and 144.130) also on the 70cm band. They mostly QSO around 144.25MHz. Perhaps this will give them the opportunity to DX with G-stations?

Negotiations have been taking place with our HDTP (now called RDR) in the hope of achieving HF privileges for Dutch Novices, but it has just been announced that this is not possible until the CEPT regulations are 'harmonically' changed in this direction.

Monika Pouw-Arnold PA3FBF
Mijdrecht, Netherlands

Iambic Keying

As a recently licensed CW QRP operator I am getting mixed messages about the value of iambic keying and the right way to learn it. I hear keen CW operators say they would never go back to a straight key (or can't go back?).

Gerald Stancey questioned its value in MM43 (p.41). The advantages seem to be speed, accuracy and relief from aching hands. I wonder if this depends on your interests. For example, speed is important for contesting whereas for QRP conditions on many noisy bands rarely permit operation above 15 to 20 wpm.

Physical impairments aside, accuracy would seem to about establishing good habits as a beginner and maintaining them thereafter. There are some excellent computer-based Morse trainers that give good feedback on style. As for aching hands, I get writer's cramp

while copying long before the pump key troubles me, but I can see the advantage here for very long sessions. I would be interested to hear your readers' experiences.

As for the correct way to learn iambic keying, some tell me they just experimented until they got it right. I heard one amateur on air insisting you should learn from a book ensuring letters like C, F, L, Q and Y are done with minimum movements. So who's right? Could someone recommend a good method.

Andy Barth MM0ALC
Ayrshire, Scotland

Marconi Multiple Tuner – International Project

About a year ago I found a Marconi Multiple tuner in the Netherlands, but it was a complete wreck, in a really disastrous condition. After a lot of effort, I was lucky enough to find (in the UK) the most important missing part, the aerial tuning condenser.

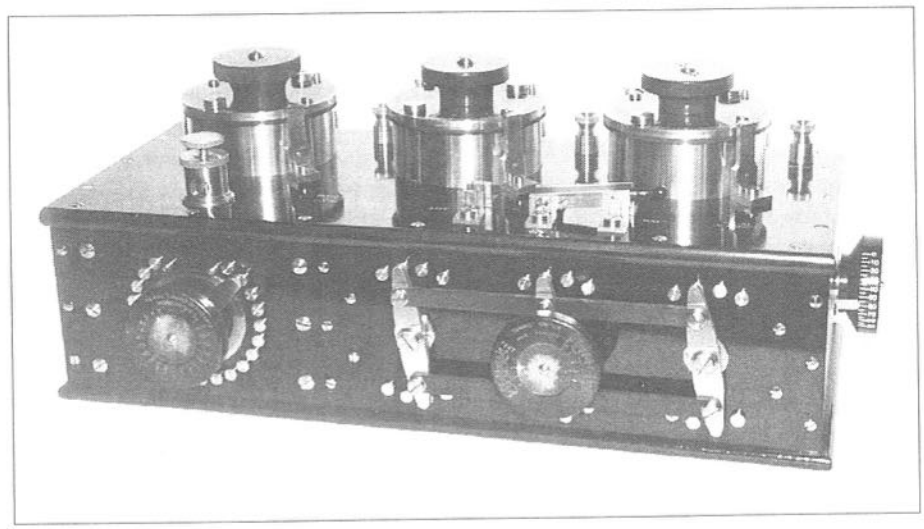
Then I found someone in France who could restore the set for me. He has done a fantastic job as can be seen from the photo, and it now proudly stands next to my Marconi Magnetic Detector (see front cover of MM48. – Ed.), here in Belgium.

It is such an exceptional item that I now want to start on phase 2 of the restoration. Unfortunately there is nothing inside the set; all the coils are missing. Hence this cry for help. Is there anyone on this planet who can provide me with replacement coils?

Fons Vanden Berghen
Lenniksesteenweg 462/22
B-1500 Halle, Belgium

Calls You Have Loved!

In *MM* over the years there have been many notable contributions on a variety



Fons Vanden Berghen's Marconi Multiple Tuner

of subjects, but I suggest there is one facet which needs airing while memories are fresh. There must be those reading this who have their own personal recollections of callsigns that slipped off the hand in the full majesty of Morse.

Some of the calls within the sphere of amateur radio are a delight to hear. I'm told that my own call sounds good at a distance, with my trusty old RAF Type D or Marconi 365 coping pretty well with G4PZQ.

I feel sorry for those saddled with non-ergonomic calls, especially EI5, ES5 and the like. I came across one of this genre early on in WWII. At AM W/T Ismailia, we were briefed to listen for and accept traffic from French Air Force stations in the Middle East and North Africa, this being at the time of the fall of France. Algiers and Tunis came up on our nets as FG41 and FG42, no problem. But then Beirut came up as 55I!! However, we overcame this obstacle by conniving with our French colleagues to use short figures.

Our RAF Inter-Command net used three-letter G calls. Singapore had probably the best sounding call, GEO. Otherwise we were using three character letter/figure combination calls, my favourite all-time great being the call allocated to the HQRAF Middle East station at CAIRO – 9NG. Just try that one for sheer beauty. And it's even better with the short figure 9.

I hope this will stimulate readers to dig into their memories. There will surely be some 'vanity' calls that will raise a wry smile. I trust, though, they will rule out certain calls of stations not in the English speaking world. It is rather unfortunate that some 'foreign' calls though quite innocuous in their own language are a wee bit 'near the bone' in English.

Doug Coe G4PZQ
Wymeswold, Leicestershire

I've always felt that 'pleasant-sounding' callsigns fall into two categories; either they have a good overall rhythm, or else they reach a satisfying conclusion in the same way as a tune or a line of poetry. Sometimes, a callsign can qualify on both counts, and it then becomes a real joy to send and to receive.

Looking back to my seagoing days, it seemed that most callsigns beginning with an 'N' or a 'Z' had a head start on overall rhythm. Among the marine coast stations, NBA and ZFE qualify on that basis.

Mind you, good rhythm isn't the only thing that enhances the attractions of a callsign. VPS and GZO, the commercial and naval stations at Hong Kong, also had a particularly musical sound to me, but perhaps that was because my wife-to-be was working out there for some time!

Among the 4-letter callsigns issued to ships, Cunard seemed to get more than their fair share of the good ones, with Mauretania*/GTTM,* Queen Mary*/GBTT and* Queen Elizabeth*/GBSS. Looking across the Atlantic, the US liner* America *fared quite well with WEDI, as did her big sister* United States *with KJEH.*

I would agree with Doug Coe on 'near the bone' callsigns. That allocated to the Swedish ship Birka *has somehow always stuck in my mind – it began with 'S' and ended in 'T'; no doubt you*

can supply the missing letters! Luckily, the Birka *was a coaster fitted with radiotelephony only, so I don't imagine the callsign got used too often. – Ed.*

Just in Case

I read with interest Geoff Arnold's comments on the Guillain-Barr victim in Australia who communicated with his grandson by means of Morse code (MM48, p.1).

A friend of my parents suffered from the same disease some 25 years ago, but unfortunately she didn't know Morse. With this in mind I made an arrangement with my husband a long time ago that if (heaven forbid) I were ever in such a paralysed situation, and other means of communication failed, he would ask a Morse person to visit me.

No-one wants to think about such a possibility, but as many accidents, etc., happen far from home, perhaps we should all carry a note in our wallet to the effect that we can communicate using the Morse code?

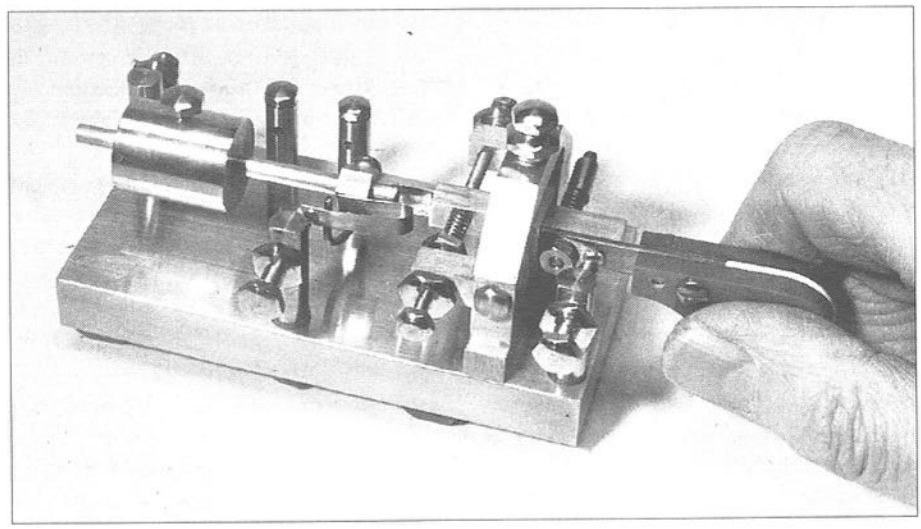
Monika Pouw-Arnold PA3FBF
Mijdrecht, Netherlands

Mini-Bug from Canada

I thought you might be interested in one of the keys made by John Merrick of Toronto. He has made a number of hand keys, bugs and paddles, and his latest bug, which I call a 'Mini-bug' is a bit unique.

The base is 2in x 4in (50 x 100mm) and the key is all brass except for the bronze spring, the plastic finger pieces and the alloy contacts. John gets the contacts from discarded relays.

He makes everything by hand in his apartment, so his production rate is on the low side. However, in case anyone



John Merrick's 'Mini-bug'

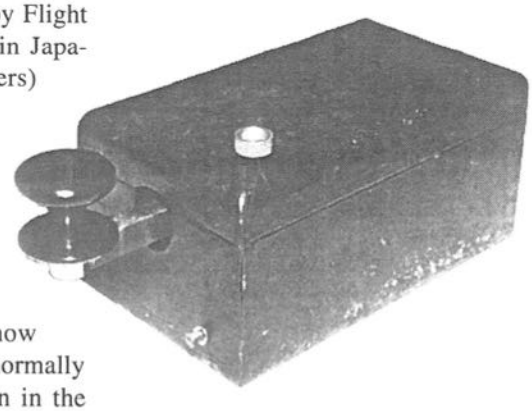
Photo: Murray Willer

Japanese Navy Aircraft Key

The unknown key at the top of page 34 of MM49 is a key used by Flight Radio Telegraph Operators in Japanese Naval aircraft (bombers) c.1930–1945. The transmitter used was a 95 Type No.2 MF/HF Radio Telegraph Transmitter.

The key was made in Japan by Taiko Co. Ltd; Hayakawa (now Sharp Co. Ltd); Matsushita-Musen (now Panasonic Co. Ltd), etc. It normally has a metal cover not shown in the photo in MM49.

Motoaki Uotome JA1GZV
Tokyo, Japan



Japanese Naval Aircraft key with cover in place

wants to get in touch with him, his address is: John B. Merrick, 400 McLevin Avenue, Apt. 1901, Scarborough, Ontario, Canada M1B 5J4.

Murray Willer VE3FRX
Toronto, Ontario, Canada

Too Slow?

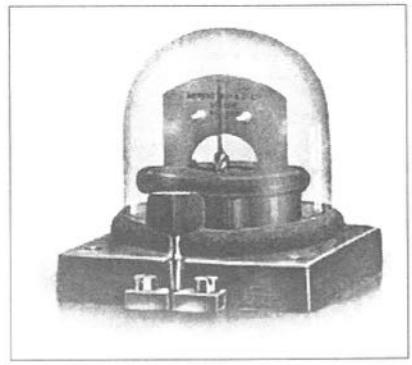
I had an interesting conversation with my father-in-law, ZS6BIC, recently, when he lambasted the CW fraternity for ignoring his rusty CW CQs (he hasn't done Morse for years and has only recently tried it after much cajoling by me) because he SENDS/RECEIVES TOO SLOWLY.

He said, the good old days are gone, and now it is speed merchants with no time for the older folk or slow speed learners. I had a similar conversation with a couple of other chaps on USB in Cape Town.

It seems to me that CW is being squeezed to death in a vice made up of those openly opposed to it and who don't do it, and those within its hallowed sanctuary who have become so good at it that any newcomer has to reach their exalted levels before they'll begin to converse with him. They succeed in making learners feel like cretins, ashamed to try their hand on the bands for fear of being ridiculed.

Roger King ZS6QL
Johannesburg, South Africa

(Roger's comments apply to the situation as he sees it in South Africa. We would be interested to know how readers view the situation in other countries. – Ed.)



Glass Cover for Galvonometer

The galvo on the railway telegraph terminal on page 24 of MM49 should have a glass cover. It appears to be a Siemens Brothers & Co. 'UK' Pattern Galvanoscope (see above), Catalogue No. T 1080. The cover was fitted at the bottom with a ring of chenille to exclude dust.

Fons Vanden Berghen
Halle, Belgium

(It seems likely that the key on the set, marked '... NS BROS & Co 34' also came from Siemens Bros. – Ed.)

QRS SVP

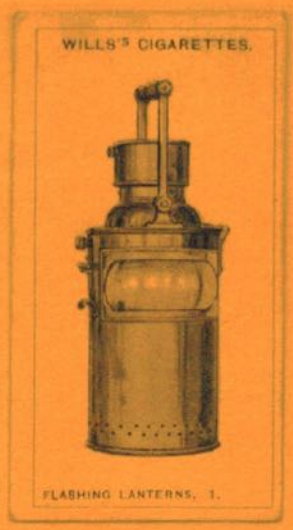
F5SJQ comments on experienced operators coming back at a speed which is far too high for beginners ((QRS for Beginners SVP, MM49, p.22), but part of the problem is that some CW-beginners send much faster than they are able to copy, without realising they are doing it. When this happens, a more experienced operator receiving 'QRS pse' may be inclined to disregard the request when the other station already seems to have a higher speed capability. Perhaps this is one of the reasons they do not always slow down when asked?

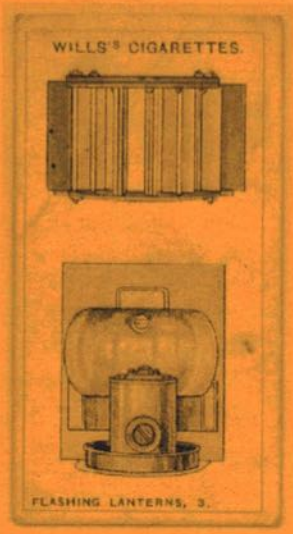
However, it should be possible for an experienced and considerate operator to spot this error and draw the beginner's attention to it.

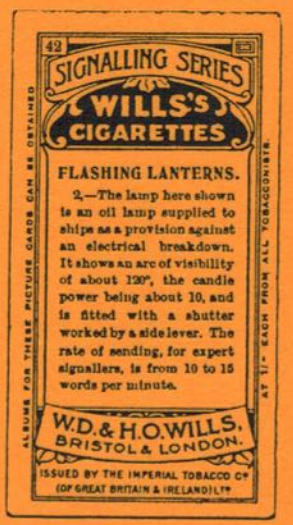
Monika Pouw-Arnold PA3FBF
Mijdrecht, Netherlands

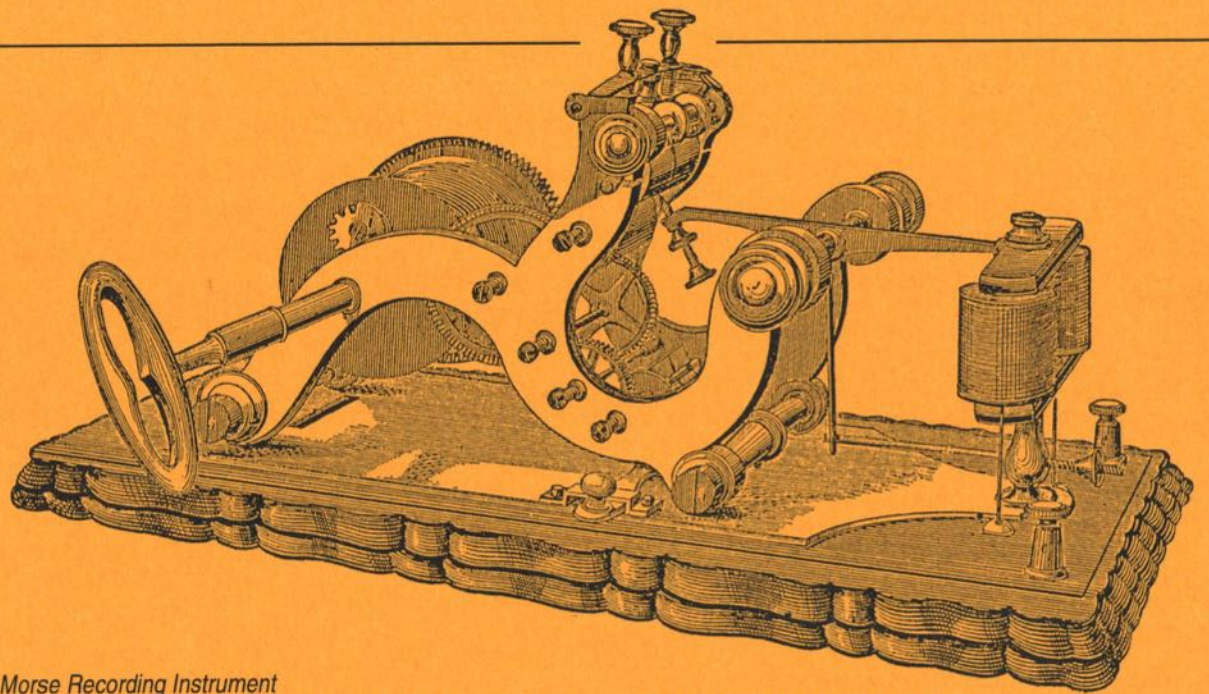
Ephemera

Continuing our series of reproductions of cigarette cards from the 'Signalling' Series of W.D. & H.O. Wills of Bristol & London









Early Morse Recording Instrument

'This telegraphic apparatus (is) that which has been by far the most extensively brought into use, being not only adopted almost exclusively in the United States and contiguous countries, but also in all the German States ... (It) has been recommended by the American telegraphic confederation, as being that which it would be most advantageous to adopt generally, so that all the parts being manufactured of the same pattern and size no difficulty would be found in replacing any of them in the case of fracture.'

(Lardner's Electric Telegraph, *1854)*