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Flying the flag for Morse

Morsum Magnificat

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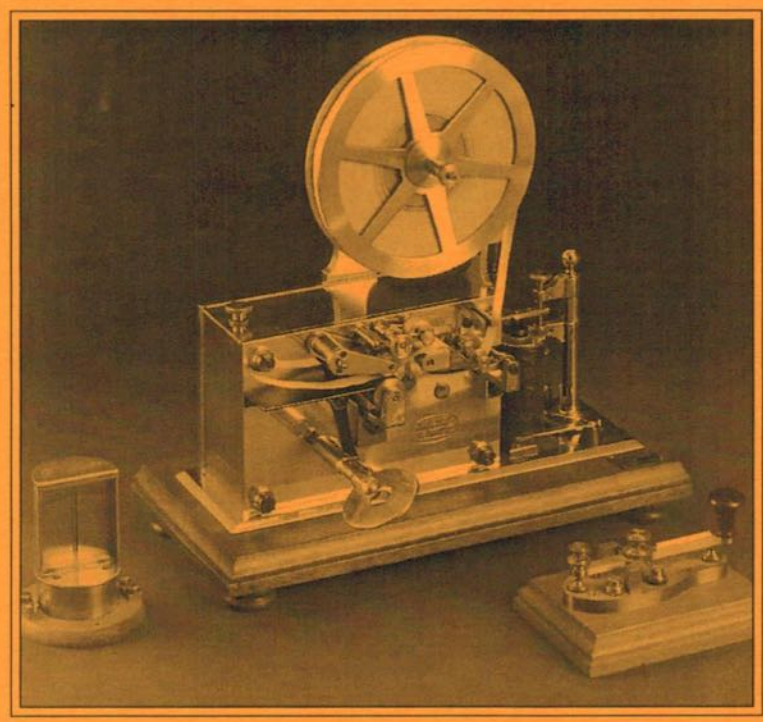
The Morse Magazine



Belgian Telegraph Instruments

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
Belgian instruments – key, inker and galvo – made by Charles Richez, Bruxelles
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Comment

IT IS NOW MORE THAN FOUR YEARS since we first commented in *MM* on the reports of an alarmingly high level of 'false alarms' generated by GMDSS and EPIRB equipment on board ships. (These satellite/terrestrial-based systems, the 'Global Maritime Distress and Safety System' and the 'Emergency Position Indicating Radio Beacon', are intended to replace the traditional safety functions of the seagoing radio officer and Morse.) The INMARSAT organisation's journal *Ocean Voice* had then just revealed that something in excess of 97 per cent of calls received at the emergency control centres fell into this category.

Articles since published in various journals have sought to reassure that these new ways for handling global distress and safety traffic to and from ships will greatly improve safety of life at sea, as compared with the 'bad old days' when seafarers had to rely on those archaic, manual W/T communicators. Unfortunately, it seems that things are not going to plan.

The feature 'GMDSS Update', commencing on page 8 of this magazine, details some of the problems as seen by N6SL and K1SMF, both actively involved in the introduction of GMDSS. It does not make reassuring reading for seafarers.

It can be argued, of course, that the fact that there are now far fewer ships, spread more thinly around the world's oceans, means that a global system must replace the more localised communications which served ships in trouble in the past.

In the dash to save the money previously expended on the radio officer's salary, by offloading all his responsibilities on to the navigating officers, too little account seems to have been taken of what other duties those officers will have in an emergency situation. Also, not unusually, lack of liaison between government departments and public service agencies has not helped efforts to engineer a smoothly working system.

There are now a mere three months to go to the official CW cut-off date for GMDSS-equipped ships, and yet more W/T coast stations are closing down. It is earnestly to be hoped that it will not, as N6SL fears, take a modern-day *Titanic* disaster to get things sorted out.

Geoff Arnold

G3GSR

Contents

Adverts

News

Revision of Amateur Morse Requirement Included in RA Strategy

Britain's Radiocommunications Agency's 'Strategy for the future use of the Radio Spectrum in the UK, 1998' is a large document which covers the whole spectrum range of all radio services. Of particular interest to many readers of *MM* is the Agency's statement concerning the future of amateur radio, as follows:

The Agency will continue to actively support the development of the Amateur Radio Service, both nationally and internationally. There are approximately 61 000 amateur licences on issue in the UK. The number of full licences on issue has fallen slightly in the last few years while the number of novice licences continues to increase steadily. The Agency continues to enjoy a unique and constructive relationship with the Radio Society of Great Britain (RSGB) and meets regularly with them to discuss technical and licensing issues relating to amateur radio.

The Amateur Radio Packet Network continues to be an area of high growth and development. The Agency has been working closely with the RSGB to provide a licensing framework for its expansion and development but the emphasis has shifted to promote a more simplified system.

Consultation on Spectrum Pricing will provide an opportunity for the Agency to discuss the development of amateur radio and to look at the best way in which to provide the many additional facilities enjoyed by radio amateurs. The licensing structure, the revision of the amateur licence including the Morse requirement for HF operation, and how to facilitate experimentation within the amateur radio service are all issues which the Agency will continue to discuss with the RSGB over the next five years.

With increasing demands on the spectrum the pressures on the Amateur bands are very real. The Agency will therefore have to balance the needs of amateurs against the demands of existing and new radio services, and promote the most efficient and effective use of amateur radio allocations. However, occasionally it may be possible to give amateurs access to additional spectrum which is not in so much demand, such as the new VLF to HF bands. An example of this is the new European harmonised LF allocation which is now available to all Class A licence holders.

FCC Requests Views on Morse Test Requirements

As part of a biennial review of Regulations, the FCC has issued a 33-page Notice of Proposed Rulemaking (NPRM), dated 29 July 1998, which proposes the elimination of unnecessary rules and the streamlining of the licens-

ing process in the United States Amateur Service. Amongst other things, the FCC proposes to reduce the number of licence classes from 6 to 4; and requests comment on possible changes to the Morse test and the written examinations.

On the subject of the Morse test, the FCC says:

'Currently, three telegraphy examination elements are administered by a team of three Volunteer Examiners to ham operator applicants. The elements an examinee passes determines the class of operator license granted. In a telegraphy examination, the VEs determine the examinee's level of skill in sending and receiving text in the international Morse code.

'The rules delineate three levels of skill in telegraphy, based upon the rate at which an examinee correctly receives a telegraphy message: five, thirteen and twenty words-per-minute (wpm).

'In the early days of amateur radio, radiotelegraphy was the primary communication mode of all radio operators, including amateurs. Testing for Morse code telegraphy was necessary to ensure that amateurs could recognize and stay away from Government and commercial stations as well as stay clear of maritime distress messages.

'Today, radiotelegraphy is just one facet of many diverse modes of radiocommunication that require a technologically literate licensee. In 1990, in response to the sentiment of the amateur community, we established a codeless Technician Class operator license. In so doing, we stated that the amateur service should attract technically inclined persons. We also stated that we believed that telegraphers would be in less demand than electronics and communications experts.

'Therefore, we provided an entry level opportunity to otherwise qualified persons who found that telegraphy was a barrier to pursuing the purposes of the amateur service. Those purposes include encouragement and improvement of the amateur service by providing opportunities for advancing both communication and technical skills, and the expansion of the existing reservoir within the amateur radio service of trained operators, technicians and electronics experts.

'The decreasing role of telegraphy as a communications mode is also demonstrated in our implementation of the Global Maritime Distress and Safety System (GMDSS). In permitting GMDSS to replace the mandatory Morse code equipment and operator, we recognized industry movement to newer and better technology for distress situations. The GMDSS relies on satellite and automated terrestrial communications systems for distress and safety communications. The Commission noted that by incorporating these advanced communications techniques into the safety system, GMDSS would significantly improve safety of life and property at sea throughout the world.

'The international Radio Regulations that apply to the Amateur Radio Service require that all amateurs licensed to operate below 30MHz demonstrate their ability "... to send correctly by hand and to receive correctly by ear, texts in Morse code signals." The Radio Regulations do not specify any particular speed. We note that the 1995 World Radiocommu-

nications Conference (WRC-95) resolved that Article S25, which includes the international amateur code requirement, be considered at the 1999 WRC. Subsequently, this consideration was delayed to the WRC scheduled to be held in 2001. (We now understand that WRC-99 has been delayed until the year 2000 – with WRC-01 taking place in 2002.)

'In preparation for consideration of the code requirement at a future WRC, the ARRL surveyed amateur licensees, both members and non-members, to determine their attitudes on the Morse code requirement. Some 63 percent of ARRL members agreed that "for the foreseeable future, it is important to retain the Morse code requirement in the international regulations," while 30 percent agreed that "the Morse code requirement for amateur radio licensing is no longer relevant in the international regulations." Among all amateurs, members and non-members, 57 percent favored retaining the Morse code requirement, while 35 percent regarded it as not relevant.

'Among ARRL members that addressed what the code speed requirement should be for full amateur privileges (Amateur Class Extra), 41 percent favored a requirement in the 10–13 wpm range, versus a minority of 32 percent who favored the current 20 wpm requirement.

'Based in part on these survey results, an ARRL committee proposed to reduce the General Class code speed requirement from 13 to 10 wpm, and for all code examinations to specify one out of five minutes of copy.

'In view of the changes in the technologies that amateurs use to communicate generally, and views with regard to the Morse code requirement specifically, we seek comment on all aspects of the Morse code standards used in our examinations. Do the three levels of 5, 13, and 20 wpm remain relevant in today's communications practices? Should we continue to have three different levels, or should these be reduced to one or two – and, if so, what should be the required speeds?

'Were we to reduce the required Morse code elements, should we add elements to the written examination to ensure a working knowledge of the newer digital technologies which, in part are replacing the Morse code?

'Or, should we consider specifying the method of examining for Morse code proficiency, such as requiring fill-in-the-blank or copying one out of five minutes sent, instead of allowing the VEs to determine how to test for code speed? We request comment on these and any other issues related to our code speed requirements.'

Telegraphy Waivers for the Handicapped

The NPRM of July 29 also includes the following:

'Additionally, in (petition for rule making) RM-9196, the ARRL requests amendment of the amateur rules which allow telegraphy examination credit for the higher telegraphy speeds to examinees with a disability. Specifically, the ARRL requests that the examinee be required to attempt the higher-speed telegraphy examination before examination credit is given pursuant to a doctor's certification. In addition, the ARRL

requests that volunteer-examiner coordinators (VECs) be authorized to request medical information from the certifying physician pertaining to the examinee's disability.

'It should be noted that these issues only remain if we retain the higher telegraphy speeds requirement, since if the requirement were eliminated a person with a disability would not have to apply for examination credit.

'We tentatively conclude that, if we do maintain the requirement, neither of these proposals is an appropriate means to address potential abuses of the physician certification requirement. We believe that these proposals place an unfair burden on examinees with disabilities, and raise serious privacy and confidentiality concerns. We seek comment on ARRL's proposal and our tentative conclusion.'

The full NPRM can be downloaded from

http://www.fcc.gov/Bureaus/Wireless/Notices/1998/fcc98183.txt and interested parties may file comments on or before 1 December 1998, and reply comments on or before 15 January 1999. Comments are to be filed via a defined formal system.

EUCW
Fraternising CW QSO Party 1998

The European CW Association's 18th CW Fraternising Party will be held on 21–22 November 1998 as follows (all times UTC):

Dates, Times, and Frequencies:

21 November

1500–1700	7.010–7.030MHz
	14.020–14.050MHz
1800–2000	7.010–7.030MHz
	3.520–3.550MHz

22 November

0700–0900	7.010–7.030MHz
	3.520–3.550MHz
1000–1200	7.010–7.030MHz
	14.020–14.050MHz

All amateur and SWL stations in Europe are invited to participate in one of the following four classes:

A – Members of EUCW clubs using more than 10W input or 5W output.

B – Members of EUCW clubs using QRP (less than 10W input or 5W output).

C – Non-members of EUCW clubs using any power.

D – Shortwave listeners.

Exchanges: Class A & B, RST/QTH/Name/Club/Membership number.

Class C, RST/QTH/Name/NM (i.e., not a member).

Class D, Log information from both stations.

Call: CQ EUCW TEST. Stations may be worked or logged only once a day, per band, during the contest.

Scoring: Class A/B/C – 1 point per QSO with own country, 3 points per QSO with other EU country. Class D – 3 points for every complete logged QSO.

Multiplier, all classes: 1 multiplier point for each EUCW-club worked/logged per day and band.

EUCW clubs are AGCW-DL (Germany); Benelux-QRP; BTC (Belgium); CTCW (Portugal); EAQRP (Spain); EHSC (Extremely High Speed Club); FISTS; FOC (First Class Operators); G-QRP; HACWG (Hungary); HCC (Spain); HSC (High Speed Club); HTC (Switzerland); INORC (Italy); MCWG (Macedonia); OHTC (Finland); OK-QRP

(Czech Republic); SCAG (Scandinavia); SHSC (Super High Speed Club); SPCWC (Poland); UCWC (Russia); UFT (France); U-QRQ-C (Ukraine); VHSC (Very High Speed Club), 3A-CW-G (Monaco); 9ACWG (Croatia); I-QRPC (Italy). Members of these clubs are especially asked to support this event which is one of the principal EUCW activities of the year.

Logs: to include date, UTC, band, call, info sent, info received, and points claimed per QSO.

Summary: to include full name, call, address, total points claimed, station details, power used, and signature. Entries to be received by the EUCW Contest Manager, Guenther Nierbauer DJ2XP, Illinger Strasse 74, D66564 Ottweiler, Germany, not later than 31 December, 1998.

Certificates will be awarded to the three highest scorers in each class. Additionally, this event offers a good opportunity to make contacts qualifying for the 'Worked EUCW' Award (see below).

EUCW is an association of amateur clubs which aims to promote and encourage amateur CW. Members of the individual clubs mentioned are automatically members of the Association. In accordance with the aims of EUCW, the CW Fraternising Party is open to both members and non-members of EUCW clubs.

(Information: EUCW Bulletin)

Worked EUCW Award

The European CW Association's 'Worked EUCW' Award offers an award certificate printed on heavy parchment type paper depicting the map of Europe 'at the time of Samuel F.B. Morse'. There are three classes of award, 'Standard', for contacts made using any authorised transmission power; 'QRP', for contacts made using not more than 5 watts RF output transmission power; and 'SWL', for shortwave listeners".

Open to both members and non-members of EUCW Clubs, the requirements of the award are confirmed CW only contacts (SWLs – CW stations heard) with 100 different stations who are members of EUCW clubs, over 3 different amateur bands with a minimum of 20 stations worked or heard in each band. The total of 100 stations worked or heard over 3 bands must include at least 3 members of 6 different EUCW clubs.

Only contacts made on or after Morse bicentennial day, 27 April 1991, count for the award, with up to 40 stations worked or heard on that day counting for double points. Full details of the award may be obtained by sending 2 IRCs to the EUCW Award Manager, Guenther Nierbauer DJ2XP, Illinger Strasse 74, D-66564 Ottweiler, Germany.

The EUCW Fraternising CW QSO Party (see above) offers an excellent opportunity to gain qualifying points for this prestigious CW-only award.

Reprint of Phillips Code

A reprint of the 1923 version of The Phillips Code in its original format is available from Ken Miller, VE7CTW, 5300 Cantrell Road, Richmond, BC V7C 3G8, Canada.

Included is documentation describing some additions that were made to

the code; a sampling of wire codes (telegraphers' equivalent to the current 'Q' signals); a listing of some common service message abbreviations; and the stock market abbreviations supplement.

The price is $25 (CDN) in Canada, or $17 (US) for addresses outside Canada. Foreign payments in US funds only. The price includes airmail postage where appropriate, and all applicable taxes.

It is also available from The Nilski Partnership, The Poplars, Wistanswick, Market Drayton, Shropshire TF9 2BA, England, price, including postage, £10 (UK), £10.20 (Europe, airmail), £10.50 (Rest of the World, airmail). Payment by cheque drawn on a London clearing bank, payable to 'The Nilski Partnership'; or by Visa, Eurocard or Mastercard, quoting number, expiry date and the name on the card.

UK Closure of 500kHz on Video

The radio operators at Land's End Radio/GLD station, in conjunction with Discovery Films, have put together a video to mark the closure of all UK coast station distress and commercial operations on 500kHz at 2359Z on 31 December 1997.

Directed by John Chappell, Senior Radio Operator, the video is 59 minutes long. It is introduced by John who outlines the history of the coast station service in the UK including the *Titanic* CQD and SOS messages (copies of these appear in the video).

The remainder of the presentation is in Morse, being recordings of the four CQ shutdown messages and the interchange between operators in the UK and Europe, and as far afield as VCM, SAA and SPE (a written transcript is provided).

The video shows the scene live at Land's End Radio Station with footage from other stations. It is an excellent and moving record of the occasion, placing on record the last poignant moments of UK transmissions on 500kHz.

The video is available for £10.50 in the UK; £11.49 Europe; £13.49 USA and elsewhere (all prices include post and packing), from Discovery Films, Kings Court, 17 School Road, Hall Green, Birmingham B28 8JG, England. Tel: 0121-743 4330. Fax 0121-742 4427.

Alternatively, from outside the UK, order by e-mail from: Discovery-Films@cornwall-online.co.uk clearly stating your full postal address, to receive the video with an invoice for payment by Eurocheque or sterling money order.

Discovery Films have a website at : http://www.cornwall-online.co.uk/discovery_films

GMDSS Update

Problems Ahead

THE SEPTEMBER 1998 ISSUE of *The World Wireless Beacon*, Newsletter of the Society of Wireless Pioneers, Inc., contains two articles about the implementation of the Global Maritime Distress and Safety System (which will replace Morse at sea) due to be implemented by 1 February 1999. *(See MM38, p.8, for a detailed explanation of what is involved. – Ed.)*

Ben Russell, N6SL, a member of the GMDSS Task Force, writes "All commercial shipping was scheduled to have GMDSS equipment up and running no later than 1 February 1999. On this date GMDSS ships will no longer use CW. It should be noted that the United States Coast Guard (USCG) will not have Digital Selective Calling (DSC) up and running on MF or VHF, and will miss the deadline by at least one year.

"The International Maritime Organization (IMO) had to revise its policy on VHF-FM to require that all commercial vessels will continue to monitor VHF-FM Channel 16 (156.8MHz) until 1 February 2005, to permit GMDSS and non GMDSS vessels to communicate. The Coast Guard will continue to monitor 2182kHz for SSB calls until their computer interface problems are solved."

Different Approaches

He says: "The FCC and the USCG seem to have approached the GMDSS in different ways. The FCC requires that US ships have two GMDSS operators, with one having only GMDSS duty during an emergency. The USCG supports the IMO STCW 95 (Standards of Training, Certification, and Watchkeeping Committee) which will require that all deck officers receive several weeks of GMDSS training. Unfortunately, the small crew sizes and other responsibilities of the deck officers may not permit any of these trained personnel to be fully available for distress communications.

"It would appear that our different Government agencies have not fully cooperated with each other due to fiscal problems. The FCC is reducing its personnel who can monitor and inspect maritime radio installations by permitting licensed technicians to perform annual inspections and issue necessary SOLAS (Safety of Life at Sea) documents.

Serious Problems Ahead

"One just has to listen to VHF-FM Channel 16 on any weekend to hear the poor procedures. That distress frequency is not much better than the Citizens

Band these days and the FCC no longer requires small personal vessels to have FCC radio station licences or operator licences... The lack of ship licences makes identification of calls difficult because some private boat owners just use personal names to call their friends on Ch.16...

"It looks like deep sea ships may have a serious problem between 1 February 1999, and approximately 2005 due to lack of shore facilities around the world that have operational GMDSS capabilities and the loss of CW capabilities with trained operators at sea and on shore. At present there is a high false alarm rate caused by poor training and by the system design.

"It may take a modern day *Titanic* disaster to get correct the problems caused by the IMO and GMDSS."

A Personal View

Will Halpin, K1SMF, an active shipboard Radio Electronics Officer, and an adjunct GMDSS instructor at the American Maritime Officers School, who is also on the mailing list for the GMDSS Advisory Group, contributes a personal view of GMDSS today.

He says that although the system has some good design elements "the biggest fly in the ointment is the way the 'system' is being implemented. Those in the 'inner circles' of GMDSS planning seem to be isolated from the real world.

"In my travels around the states and the globe I've had a lot of opportunities to converse with vessel operators, shoreside technicians, FCC inspectors, and USCG personnel from seamen to full Captains. From SAR crews to ship Captains, to Group Commanders, one thing is certain. In the real operational world of GMDSS most individuals are still in the dark as to its functions and its mandates under CFR... Apparently the trickle-down theory of economics is also being applied to the dissemination of GMDSS info.

99 Percent False Distress Alerts

"Now add to the above the fact that the system started its phase-in in February of 1992 with a drop dead date of 1 February 1999. All cargo ships over 300gt and all passenger ships are required to have the GMDSS gear installed by that date and have two GMDSS licensed operators aboard. All fine and dandy except that the shoreside will not, repeat not, be in place.

"The VHF segment (A1 Sea Area) will most likely not be ready till 2005, as per the Coast Guard's admission. The MF DSC equipments already installed are giving them problems, thus the A2 Sea Area portion of GMDSS is sporadic at best.

"Then factor in the fact that presently about 99 percent of the DSC Distress Alerts are proving to be false along with almost as many false 406MHz EPIRB (Emergency Position-Indicating Radio Beacon) alerts. By the way, USCG cutters do not fall under the mandated carriage requirements so they will not be equipped with SITOR or DSC communications."

No Confidence in System

"The equipment (at least most shipboard types) is fairly reliable but there is no confidence in the system. You can't

have a 99 percent 'cry wolf' figure and expect people to have faith that GMDSS works. On top of this, most commercial cargo ships have done away with the Radio Officer (an attentive reading of the few lines of the Telecommunications Reform Act of 1996 pertaining to GMDSS will actually prove there is NO requirement to eliminate the R/O, the position is just no longer mandated by law) so the Mates assume this function along with the dozens of other collateral functions they have on watch.

"In times of distress or emergencies this GMDSS designated primary operator's sole function is to set watch on the Distress and Safety frequencies (80.1123), yet a check of most vessel's Emergency Bill will show that this same individual has other designated responsibilities such as a Fire Party Leader, or supervising the lowering of the lifeboats, etc.

"For whatever reason, the USCG and FCC have yet to straighten this out. Shipping companies have vast political influence and Congressional inquiries squelch enforcement effectively."

Not Their Job

"Is it a safe system? I think not. At least not in its present form. The philosophy of the Distress and Safety radio watch is just not emphasized strongly enough. The Mates are overburdened as it is. Too many individuals (Captains included) feel that it is not their job to keep track of the safety of other vessels. Many refuse to maintain a proper radio log or conduct proper routine testing, as mandated under the CFR, as they claim it interferes with the proper navigation of their vessel.

"They want to sail without an R/O, yet they refuse to truly accept the mandated responsibilities that go along with the new system. This of course doesn't show up on an annual FCC inspection because these inspections are now being conducted by the private sector. Usually the same company that has the contract for 'shoreside maintenance' gets the FCC inspection job as well. Talk about the fox guarding the hen house!"

CW Still Alive

"As stated initially, this is just one individual's opinion. Is CW dead? Well out here in the Far East 500kHz is alive with vessel traffic and shore stations calling with their traffic lists. The same can be said for the coast of South America.

"Can these same ships communicate with a modern GMDSS equipped vessel other than by VHF? And even if they are within VHF range do they have command of the English language as mandated by the IMO for communicators? There's a lot to be said for the old Q-signals!"

CW Under the Stars – and more

by Dr Gary Bold ZL1AN

I VISITED MY SISTER'S FARM in Northland recently. On Saturday evening, while everyone else was watching the tube, I went out into the still, clear night. I G-cramped the Trident mobile whip onto the roof-rack of the Holden, and fired up the FT7-B I keep in the back.

Eighty was alive but the QRN was very bad. From experience I knew that SSB contacts with my 30W into the whip would be difficult. No sensible SSB op would want to talk to a weak portable signal on such a difficult night.

But this rig had a good filter, there was plenty of CW activity, and CW QSOs were no problem at all. I felt like CW anyway, so I spent a pleasant 20 minutes alternately fingering the paddle and copying in my head while watching the stars. We don't see them like that in Auckland city any more.

While I was Morsing away and contemplating the thermonuclear reactors in the sky, my brother-in-law Robbie heard the faint music of Morse drifting in the window and emerged to see what I was doing. He stayed for an hour while I translated, word for word, the code that the ops on the other end were sending to me (I can only do that up to about 20 wpm, copying from the speaker), and gave him a résumé of what I was sending back on the keyer. Between QSOs he plied me with questions. How did the paddle work? How fast was I sending? How did I learn to do this?

Food for Thought

Now packet radio (which I've demonstrated to him before) leaves Robbie unimpressed. He's a software consultant, and spends his days doing complex things with databases, statistical software and the world wide web on high-end Pentiums with a zillion megabytes of RAM.

For him, packet can't compete with the Internet. Nattering on SSB doesn't grab him either, because yuppies can now talk across the world with the portable brain-fryers carried in their three-piece suits. But he'd never seen or heard a CW QSO before, and he was very impressed.

It intrigued him to see a communication mode in which a human is a fundamental, bionic part of the signal processing chain. If he ever gets a ticket (I'm working on him), he'll definitely be a CW man.

Food for thought. A few years back many of us surmised that computers

and digital modes would provide the new technology to attract bright young people into Hamming. But along came cheap telephone modems and the Internet. That was easy, fun, and required no licence. They went that-a-way! But (oddly some think) CW retains its fascination, and even appears to be growing in popularity.

Morse is Far From Dead

The following message (edited) appeared on the ZL1AB packet bulletin board from a VK operator:

'CW won't go away JUST YET. I was asked by my father-in-law (not an amateur) if I thought it would ever vanish from the planet. After due deliberation I decided that it would not. I see it as joining a long line of time-honoured occupations which people pursue because they want to.

'Steam trains still run; people still ride horses while others make horseshoes for said nags; some people enjoy spinning yarn; many, like myself, brew our own beer, etc. You can still find a stonemason if you want one or, indeed, you can become one! People still seek radios which have valves in them; digital watches haven't annihilated the watches which have pointers whizzing around instead of LCD displays.'

I agree. Morse is far from dead. If you're experienced enough to both read it and tell your shack visitors what you're reading while it's coming in (like I did with Robbie), you'll probably find they think it quite fascinating. Try it sometime.

This, in fact, is how I got hooked when my father took me as a schoolboy to visit the magic cave of Tom ZL1NG. His effortless Morsemanship was the call of the Lorelei that lured me into radio, and eventually changed my life by making me a physicist. The magic has never died.

Evaluating Morse Sending

Since December, 1994, I've been conducting an evaluation of computer-aided Morse testing on behalf of the NZART. So in the last couple of years I've listened to a lot of Morse sent by candidates and learners. I've also answered a lot of questions.

Most people know when they're up to the receiving standard, but are unsure what the examiner will make of their fist. So one of the most common questions I'm asked is 'How can I be sure my sending is good enough to pass the test?'

My standard answer is 'If my Morse reading software can read you, the examiner will certainly pass you.' Actually, a computer doesn't have to be able to read your Morse to get a pass, but if it can, that guarantees it.

For those who couldn't seem to get the hang of it, I've also conducted informal 'sending clinics'. I find that in 30 minutes I'm able to straighten out a lot of problems. It's a bit like learning golf or tennis – you have to get the grip, timing and rhythm right, and the rest follows naturally. You may have to unlearn some bad habits, and this is the hardest bit.

Major Problem

How do you evaluate whether a candidate's sending is 'good enough'?

In the Netherlands, you send to a computer, and you're graded on what it thinks of you. This is pretty tough.

In all other places I'm aware of, you're evaluated by an experienced human listening to what you send. But while a computer algorithm can be specified exactly, the algorithm applied by a human can't. A human has to judge subjectively. Realising this, all Morse testers I know err on the side of leniency.

My own sending-test software uses the computer as an audio monitor, and also attempts to decode the candidate's sending on the screen. However, achieving a 'pass' depends only on whether I and my co-tester can read what was sent, in our heads.

The criterion we apply is: 'Could this person send well enough to be understood in a QSO?' If the answer is yes, and the speed is 12 wpm or greater, we give a pass. The major problem we have is getting jittery candidates to slow down, and leave enough space between their characters and words.

Changing to a Keyer

A letter from Wes, VK2WES, says: "I read with interest your 'changing to a keyer' article in *Morsum Magnificat*, Nr 42, where you commented on learning to use a straight key and paddle with the left hand, and a bug with the right.

'This is exactly the technique I had adopted. Fortunately, I have a tendency to be ambidextrous. Quite often I conduct a warm-up QSO with myself, sending back and forth with paddle and bug. Friends find this amusing and disconcerting! My speeds are a moderate 20–22 wpm, which is my achievement level 5 years after learning the code.

'Using the paddle and keyer has been a great help in correcting my bug sending. During my learning period I also used the sound of the keyer code to correct that of my straight key. Having learned to use the paddle iambically I now certainly notice the difference in the various emulations of the 'CMOS Superkeyer'.'

Assorted Tips from my Files

Over the years, learners have sent me tricks they have found useful. Do you have the problem of 'guessing ahead' and predicting, erroneously, what word you're copying? This is very common. Eventually, and sometimes suddenly, it goes away. Tricks to hasten it along are:

- Use a finger of the left hand to cover up each letter after you copy it. (You can't see the previous letters).
- Write with a knitting needle on a dual-sheet 'carbon copy' blank. (You can't see anything you've written, but you can read it afterwards on the bottom copy)
- Write with the eyes closed.
- Type the copy on a computer with the screen intensity right down (only for good typists).
- Try to think about something else.

Odd as some of these remedies sound, they have all been used successfully to break the habit by somebody.

We've Got it Made!

How come CW 'penetrates' better? Because of three factors: firstly a CW signal is either off or at full power – it's more efficient than SSB.

Secondly, the human ear/brain processing algorithms are much better at detecting a single tone than they are at interpreting a complex signal like SSB speech in noise.

Thirdly, CW filters can be much narrower than SSB filters, giving up to 10dB better signal-to-noise ratio. Hence a barefoot 30W CW signal will get through many times when a 1kW SSB signal won't.

Usually, I estimate that we have about a 15dB advantage, because of the narrowband, efficient, tonal nature of CW; more than this when the bands are crowded. That's why so many CW operators can work so much DX with wire antennas and low power. We've got it made!

(This selection of items from Gary Bold's 'The Morseman' column, in various issues of Break-In, *journal of NZART, has been specially edited for* MM.*)*

Readers' ADs

FOR SALE

HUGE VARIETY of sounders and relays for sale or trade. All clean and complete, $50 each. Also, Instructograph for sale or trade, early wind-up all mechanical model with 17 tapes for Continental and Morse practice sessions, including railroad and stock market practice tapes. Good shape, $75, shipping extra. Dave Pennes, 4607-C Santa Cruz Drive, Indianapolis, IN 46268-5354, USA. Tel: (317) 471-9605.

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

THE MM Q & Z CODEBOOK, a comprehensive list of the Q-codes and Z-codes, including a one-page list of the original Q-codes of 1912. Available from Dick Kraayveld PA3ALM, Merellaan 209, 3145 EH Maassluis, Holland. Price £5 UK, or US$10.00 outside UK, including postage in both cases. Payment accepted in cash only.

PHOTOCOPIES OF BACK ISSUES of *MM*. All out-of-print issues available. Price per copy, by airmail (US dollars, cash only): Europe $7.00; Africa/America $8.00; Oceania $10.00. Jeronimo Orellana R, EA3DOS, Av Roma 10, 08015 Barcelona, Spain.

(Note: Original copies of some back issues are still available from the editorial office at regular prices. See inside front cover for details. – Ed.)

WANTED

WANTED, DEAD OR ALIVE! Double needle telegraph. I am also looking for other 'special' telegraph apparatus. Fons Vanden Berghen, Lenniksesteenweg 462/22, B-1500 HALLE, Belgium. Tel: +32-16-38 27 21 (day) or +32-2-356 05 56 (evening). Fax: +32-16-38 24 38. E-mail: fovabe@telindus.be

COPY OF MM ISSUE No 23. Neil Fisher GM0EFQ, 1 Parsonage Cottages, Millhill Lane, Musselburgh, Midlothian EH21 7RD, Scotland.

Fleet Air Arm Panel, Lighting Control 24 Volt

IN MM59, p.58, under the heading 'Two for the Price of One', Jack Barker asked for information about his Switchbox 24 Volt Ref No. 5C/3023, obviously intended for aircraft use, which contains two Morse keys. In response, Ian Mant* G4WWX has provided *MM* with a copy of AP 1095A, Chapter 18 (dated 1945), which covers this unit.

In summary, the unit is properly designated PANEL, LIGHTING CONTROL 24 VOLT, TBR, and is primarily intended for use on Fleet Air Arm Torpedo-Bomber-Reconnaissance aircraft. Another type, Stores Ref. 5C/3108, has the suffix ABR, signifying use on Amphibious Bomber-Reconnaissance aircraft.

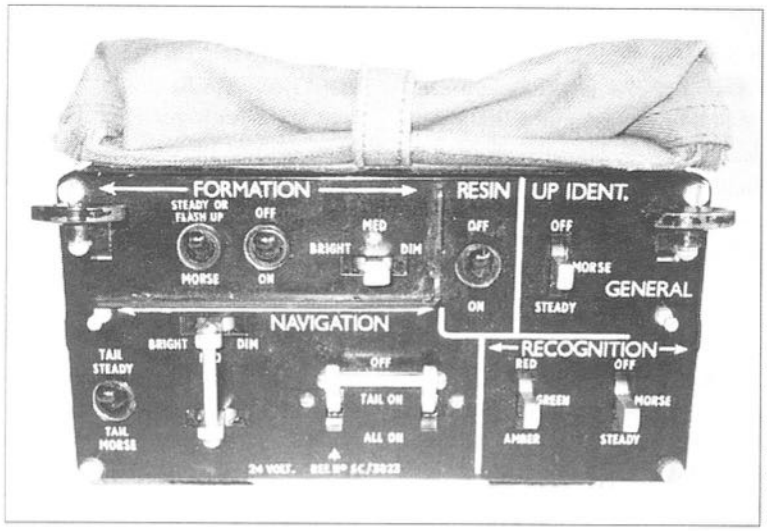
The panels are designed to centralise the control of all external lights on smaller aircraft whose general services are supplied at 24 volts. Both types weigh approximately 4lb (1.814kg).

The ABR panel is identical to the TBR panel except that on the former a steaming light switch is substituted for the tail light switch. When the four panel fixing screws are undone, the panel as a whole can be removed from the back of the case which is attached to the airframe. The two screws on the panel located beneath the Morse keys adjust the travel of the keys. The Stores Reference of the Morse keys is 5C/3027.

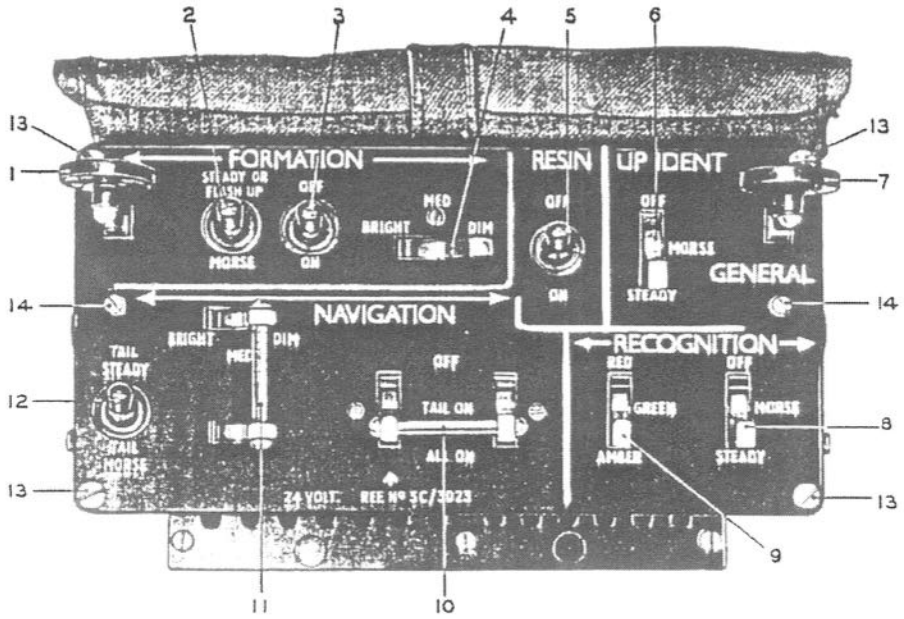
The panel has a weatherproof fabric cover which completely encloses the lighting controls. When it is required to operate the switches the cover is rolled up and held in position on top of the panel by a fabric strap secured by a press stud.

The Morse key on the left of the panel controls the formation lights. The right-hand key is designated the GENERAL Morse key. This controls signalling (when required) of the upward identification light, the tail navigation and the recognition lights, These lights may be flashed independently, collectively, or in any required combination, according to the position of the appropriate selector switches.

Other controls on the panel are for Resin lights[1], and a Steaming light[2] (only on ABR panels, utilising the tail-light switch as an on-off switch).



Photo/Collection: Jack Barker



1. Formation morse key
2. Formation morse, etc., switch
3. Formation main switch
4. Formation dimmer switch
5. Resin switch
6. Up ident. switch
7. Morse key, GENERAL
8. Recognition main switch
9. Recognition selector switch
10. Navigation main switch
11. Navigation dimmer switch
12. Navigation tail lamp switch
13. Panel fixing screws
14. Morse key travel adjusters

Front view of TBR panel with controls identified (from AP 1095A)

RAF Use?

John Elwood, WW7P, also sent details of his 5C/3023 panel which was advertised by International Military Antiques, Inc., in 1995. The advertisement, shown below, suggests that the unit was used in RAF heavy bombers such as the Lancaster, as opposed to the smaller aircraft specified in AP 1095A.

Ian Mant reports that he has recently also seen advertisements for the TBR panels claiming that they were used in Lancasters. He has, however, provided *MM* with a copy of the identification, recognition and navigation lighting circuit diagram for Lancaster aircraft Mks.I and III taken from the official RAF maintenance handbook (AP 2062A) for the Lancaster. This clearly shows that these lights are controlled by two No. 5C/372 Identification Switchboxes of the type referred to in MM30/p.18, MM31/p.47, and MM33/p.136.

Confusion over RAF use may have been caused by the availability of surplus lighting control panels in their original Air Ministry marked cartons, and their AM Stores Reference 5C/3023; also by the fact that AP 1095A, Chapter 18 of which specifies their use in Fleet Air Arm aircraft, is an RAF manual (RAF Form 2190).

It is assumed that the aviation equipment used by both the RAF and the Fleet Air Arm during WWII must have been provided via the Air Ministry. If any reader can confirm this, please contact *MM*.

Further Information Sought

(a) Ref: (1) Can any reader explain 'resin lights' please, and

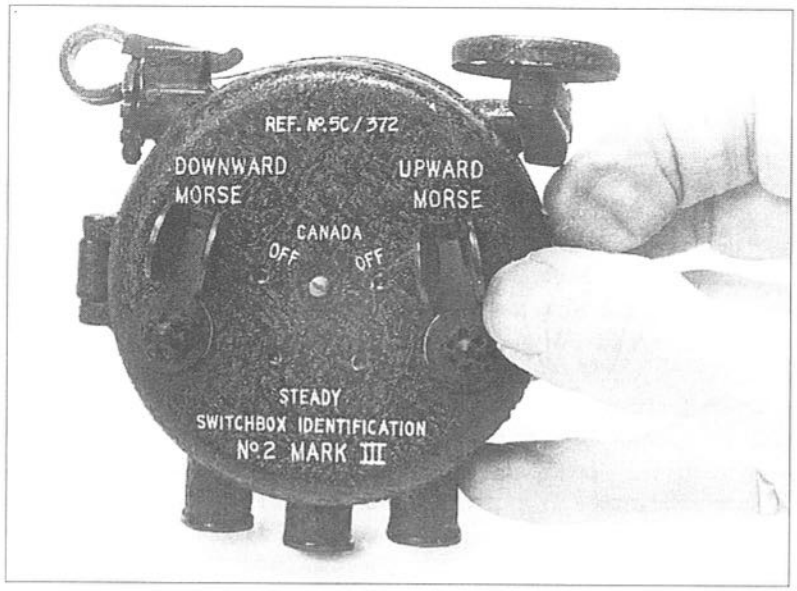
(b) Ref: (2) 'steaming light'?

(c) Is the Lighting Control Panel familiar to any reader who flew in, or worked on RAF as opposed to Fleet Air Arm aircraft?

BRITISH RAF 1944 LIGHTING CONTROL PANEL

Used in British Bombers such as Lancasters, etc. These are the detachable lighting control consoles with a host of switches, levers and morse keys to control the aircrafts lighting and morse code systems. Contained in a 9"x4"x3" removable unit complete with it's own integral canvas cover; this "Nerve System" could be instantly replaced after specified flight hours. Contained in the original A.M. (Air Ministry) and Crown marked cardboard carton DATED 1944. Lighting Control Panel, complete, excellent to unissued condition.....$49.95 (BA4052)

Advertisement for 'British RAF 1944 Lighting Control Panel'



Identification Switchbox No. 5C/372, as used in Lancasters and many other RAF aircraft

Photo/Collection: Murray Willer, VE3FRX

(d) Can anyone identify typical Fleet Air Arm aircraft of the period coming within the designations TBR and ABR as described in AP 1095A?

*(*MM *reader Ian Mant trades as 'Vintage Technical Services', supplying copies of technical manuals on vintage military equipment. His current catalogue comprises 54 pages x A4, listing all manuals available in equipment alphanumerical order and in manual code number order. Enquiries should be addressed to Vintage Technical Services, 28 Welbourne Road, Liverpool L16 6AJ, enclosing an SAE. Telephone enquiries: 0151-722 1178.)*

MM

The Meaning of CW

Is CW an Archaic Relic of the Past?

by Ed Sieb VA3ES

ON 31 MARCH 1995, the US Coast Guard formally ceased CW operations, after 94 years of service. Several months previous, both the US Navy and Marines had also ceased all CW operations.

Since 1995 many other Government and commercial communications services have abandoned the use of CW. Today, there are very few, if any commercial operations using CW as a mode of communications. In a world of satellite communications, wide-band fibre optic, Internet and very-high-capacity digital networks, this is as it should be. Let's face it, CW has no place in today's 'Information Super-highways'. In today's Amateur Radio, CW competes with high-speed, 56 and 128-KB packet backbones, as well as Amtor, Pactor, Clover and other modes of digital transmission. We can transmit vast volumes of information keyboard to keyboard, computer to computer, faster than one can send a paragraph of text at 60 wpm CW.

Frequencies Coveted

Where we Amateurs used to be innovators at the forefront of the state of the art in communications, now we barely keep up. Other services covet our valuable frequencies, from HF to microwave. As well, the Amateur Radio Service faces pressures from governments to justify its continued existence.

In the spring of 1995, the government of New Zealand made a decision to actively seek the suppression of the pertinent ITU regulation that requires Morse code proficiency for Amateurs licensed to operate below 30MHz. The ZL government was repeatedly 'briefed' at great length by 'ORACLE', an organisation actively seeking to abolish CW requirements for Hams in New Zealand. Informed insiders have indicated that 'ORACLE' is a lobby group composed of CB radio retailers and CB groups in New Zealand.

NZART, (the New Zealand national organisation) came out strongly opposed to no-code, dismissing ORACLE as a 'small loud-mouthed organisation of no significance'. ORACLE openly declared their intent to bypass the national amateur radio organisations and lobby government directly to eliminate CW.

Point Missed

And yet, through all this, ARRL and the International Amateur Radio Union continue to back the retention of CW as a requirement for licensing! Can you imagine? In this day and age! RAC

(Canada's national radio society) accepted the dropping of Morse as a treaty requirement but did not back the removal of Morse as a 'technical and operational qualification' for amateur radio examinations.

Well – those good ol' hidebound Amateur organisations are right!

Yes, CW is archaic. Yes, it is slow and cumbersome compared to modern digital modes. So what? All these facts are irrelevant. The facts of CW's speed and traffic handling capacity are irrelevant to the whole argument. Those who would continuously harp on these meaningless statistics, simply miss the whole point of CW. The continuing relevance of CW today and on through to the next century has NOTHING to do with its actual utility in sending traffic!

CW the Culture of Ham Radio

CW (or Morse Code, if you wish) is absolutely essential to the Amateur Radio service and is an essential part of what gives Ham radio its meaning. To learn the Morse Code, is to open one's heart (and mind) to the essence of Ham Radio and to grasp its soul. (I believe that CW is fundamentally necessary for Amateur Radio and that it is also its heart and soul.)

Ham Radio would be just a cold, calculating hobby without it. The Ham Radio language, its jargon, wouldn't exist without it. Oh, sure we might have some other kind of radio slang, but I bet it would be borrowed from truckers and other users of 'personal radio'. We wouldn't have Q signals or 73. And we definitely wouldn't have a history. Simply put, CW is the source of and forms the basis for the culture of Ham Radio.

Ham Without CW Illiterate

To be a 'Radio Amateur' is be a 'lover' of radio, one who studies it and appreciates it as an art. Other 'amateurs' of art, of music, become lay experts in their fields. They study the subject historically, philosophically, even sociologically and develop a true appreciation of the subject in its entirety.

To reject a single important historical aspect of an art or a culture, because it is 'archaic' is to lack even the most basic comprehension of the subject one purports to love! To learn CW is to make a connection with Ham Radio's past and its history. Learning CW means that one has learned the basic reference points of the hobby.

An analogy: to acquire my University degree, I had to take a few courses that I considered at the time quite irrelevant. I took some Humanities courses that studied the role of Women in Blues Music! I studied railroad hoboes of the 1930s in my sociology classes! I studied Nietzsche, Hegel and Kant in my 'Poli-Sci' courses.

At the time, I wondered what the usefulness of all this was and what it had to do with Communications and Media, my major. Today, I appreciate that those 'irrelevant' subjects made me a more literate, more well rounded person. Well, not to put too fine a point on it, in my opinion, a Ham without CW is simply 'illiterate'!

Lack Fundamental Understanding

Today, in those countries which have 'no-code' licences (mainly Canada and

the US), among the more 'veteran', long-time hams, there has developed a mildly cynical attitude, bordering on contempt for the newer 'no-code' VHF operators.

They're derisively referred to as '2-metre CBers'. This view stems from the perception that these new Hams lack the fundamental understanding of the roots of the hobby and that without code, they're 'stuck on 2 metres', unwilling or unable to expand their radio horizons. (In fact, those no-coders who came from the CB ranks, without CW upgrading, often continue to operate on 11 metres. Those who've upgraded and have HF privileges, tend to abandon 11 metres completely.)

For their part, some no-coders complain that they feel like second-class citizens within the Amateur community, neither fully accepted, nor able to fully participate in Amateur Radio. They claim that the increasingly irrelevant need for 'proficiency' in CW places an arbitrary and artificial obstacle in their paths. They suggest that being 'stuck on 2 metres' is boring and is causing some to lose all interest in the hobby.

Short-changing Themselves

Traditionally in Canada, once licensed, Hams always had the opportunity to get involved in any aspect of the hobby without limitations. Veteran Hams are convinced that 'no-coders' are short-changing themselves, by failing to upgrade. This saddens many veterans as they see this as a drastic change in the sociology of their beloved hobby; a change for the worse.

Here's my suggestion for an appropriate CW requirement for the late '90s and beyond. I'm not suggesting that one must know 15 wpm or even 10 wpm to get a Ham ticket. What I'd like to see is that every prospective Ham, whatever band they will operate, above 30MHz or below, be required to comprehend all the letters, numbers and punctuation. The CW receiving exam might be something simple such as 100% copy of all characters sent at a slow speed, say possibly 5 wpm or so.

Failure to Appreciate the Meaning of Ham Radio

The speed itself is not critical, so long as there is 100 percent copy of all letters, numbers and punctuation, sent during a 'reasonable' period of time. The successful candidate would then acquire a 'scheduled' licence allowing HF phone operation in certain segments of the bands, or possible restriction to certain bands only.

Full band privileges would be acquired by upgrading the qualifications through either a more strenuous CW exam or a tougher technical exam, whatever the candidate's choice.

To those who wish to become Hams, but adamantly reject CW and stubbornly refuse to learn the code, I say too bad! These persons have failed to appreciate the meaning of Ham Radio and its 'culture' and neither do they understand it. Ham Radio is not just some fancy, high tech means of communication. It's a community, a service and a tradition with deep roots and a long history. Ham Radio is the whole reason for modern communications technology. Hams invented wireless communications; without us, there might not be any Internet

today! Let's not destroy the very spark at the soul of the hobby.

Am I being too 'orthodox' in my views? Or am I being an extremist? What do you think?

(From Groundwave, *bulletin of the Ottawa Amateur Radio Club, October 1995, slightly revised by the author to reflect the current position of RAC, Canada's national radio organisation. Copies of comments received will be passed to the author. – Ed.)*

Short Break

Should Women be Sparks? - Question in Congress

(From The Marconigraph *1912)*

Since the United States Government appointment of Miss Mabel Kelso to the position of wireless operator on the liner *Mariposa* at San Francisco, and also the opening up unofficially of wireless telegraphy to women operators both in Canada and the United States, the question has been raised in Congress as to whether a woman should be entrusted with the protection of lives in this responsible position.

The Department of Commerce and Labour, at the time of Miss Kelso's appointment, held that there was nothing in the present law to prevent women from assuming charge of a wireless apparatus.

Miss Edith Coombs has been appointed wireless operator on the steamer *Roanoke* which sailed recently from San Francisco to Portland and Astoria. Miss Coombs is the second woman operator on the Pacific coast. It appears there has been some opposition to Miss Coombs going to sea as a wireless operator on the ground that gallantry on the part of the men of the vessel would not allow her to remain at her post during an accident.

But Miss Coombs insists that the travelling public need have no fear as to their safety on her account, as she has decided to remain at her post of duty until 'the last flickering spark of electricity' can be sent from the vessel.

If necessary, she declares her intention to remain on board with the captain until the last soul has been cared for and the signals of distress sent.

Reflections from Uncle Bas - 26

In Praise of Stanley

by Bastian van Es PA0RTW

IN 1955 I EARNED my daily bread working as a radio operator on board a Norwegian freighter, making regular voyages between the east coast of the USA and the Caribbean.

Being a very serious radio amateur as well as a professional radio operator, I loved to be in the radio cabin where I was in 'command'. Apart from carrying out my normal duties, I could experiment to my heart's content, adjusting receivers, transmitters and auxiliary equipment.

I had the freedom to try out various forms of aerials. Problems with neighbours concerning BCI or TVI did not exist. In my view everything I did was in the best interest of the ship, and of safety of life at sea in general. Who was to complain?

Increased Power

From the start it was clear to me that the main transmitter, which had the size and shape of a wardrobe, would perform much better after a small alteration. The manual specified 300 watts HF output, but obviously 3 x 813 valves in parallel can deliver so much more. The operation took just one day and the results were astounding, increasing the power to over 500 watts in the aerial.

Naturally the coast stations did not detect any difference in signal strength, but I felt very proud that I knew so much more (?) than the engineers who designed the rig in the first place.

It was a pity, though, that I did not have enough tools. With one voltmeter, a screwdriver and a small pair of pliers I was supposed to keep the equipment in shape. In my opinion this was not sufficient, but Captain Eigil Vesti did not like to spend a dime on things he did not consider useful. He refused to sign the list of required tools which I had meticulously written down.

Fruitful Period

However when I informed him of the hourly rates of American radio technicians, adding that I could do the same repairs for 'free', he reluctantly signed my order form. In the two years that followed on that ship, I constructed and created more electronic gadgets than in the rest of my radio amateur career.

Once, when we were discharging sugar in New Orleans I was in urgent need of a small hand-drill. In the engine room there were several drills available but all of those were much too heavy and big for the small chassis I was working on.

So I went ashore and bought a Stanley hand-drill in a hardware store in downtown New Orleans just a few blocks from where our ship had docked. This small tool was only five dollars, in fact $4.99, nevertheless it functioned perfectly and I have used it very often and for a long time without any problems. To be exact, for 45 years!

Thank You Stanley!

A few months ago the gearwheel broke. What to do?

In the city where I live the young staff of the hardware stores did not understand or maybe did not want to understand my request concerning the repair of a Stanley drill. In a friendly way, they advised me to buy an electric drill. This was so much easier to use, and more handsome too.

But I just wanted my old Stanley repaired. I didn't want a new Black and Decker. In fact I already had an electric drill in my toolbox. Sadly I wrote a long letter to the Stanley factory in USA, explaining the situation. I did not expect an answer, after all my purchase was 45 years ago.

Three weeks after I mailed my letter I was absolutely flabbergasted when the mailman dropped a thick envelope in my letterbox containing a brand new gear wheel – free of charge. Today I repaired my Stanley hand-drill and I have to say that it is now functioning just like it did when I bought it. Perfect. Absolutely amazing.

Accordingly, I feel obliged to write this article as a compliment to Stanley Inc, in New Britain, USA. Who dares to speak of poor service! ***MM***

When I went to sea in 1950, the standard radio room tool kit in British merchant ships comprised: knife; adjustable spanner; wireman's pliers; screwdriver; DC voltmeter for checking HT and LT batteries; battery hydrometer and a 4-oz reel of 20swg tinned copper wire.

Anything more was bought and paid for by the senior operator, and I met more than one Chief R/O who kept his precious Multicore solder in the safe! – Ed.

Major Fuller
and the
Fullerphone

by Tony Smith

There have been two previous articles in *MM* relating to this subject. 'The Fullerphone' (MM5, p.29), outlined the history and operation of this British military field telegraph instrument, and 'Who Buzzed First?' (MM26, p.12) described, among other things, the claim of Alfred Charles Brown to have patented a similar device some 19 years before Captain A.C. Fuller, RE, invented the Fullerphone in 1915

DURING the first years of WWI, the German Army intercepted Allied forward communications carried through telephone and buzzer telegraph systems connected via single wire and earth return. The Fullerphone was invented in an attempt to stop this breach of security.

It was a DC Morse instrument of high sensitivity. A keyed small current (microamps), not capable of interception by induction or earth leakage, was carried by line to the receiving instrument where it was converted to an audio signal by a vibrating 'chopper'.

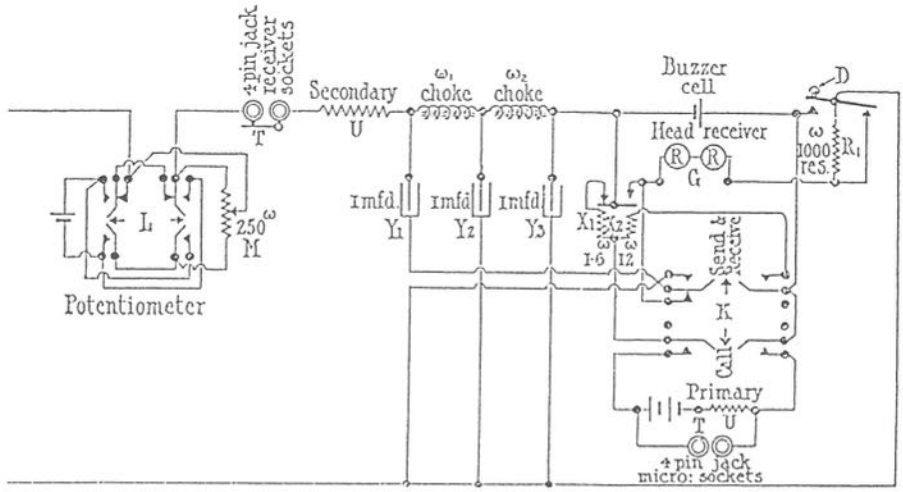
This solved the problem of 'eavesdropping' and interception became impossible except by connecting a similar instrument to the line. It was so successful that it was the only WWI telegraph instrument which remained in use up the end of WWII.

Replacement for Morse Sounder Sets

After the war, on 24 April 1919, a paper 'The Fullerphone, and its Application to Military and Civil Telegraphy', by (then) Major A.C. Fuller, was read to the Institution of Electrical Engineers in London. Fuller described in detail, the development of the Fullerphone, its circuitry, and its advantages in military operations.

He went on to suggest that in the light of experiments and trials recently made, the Fullerphone could replace Morse sounder sets on any hand-worked line in civil telegraphy. He listed the advantages that could be expected:

(a) Greater saving of battery power.
(b) Simplicity of office wiring and manipulation of instruments.
(c) Very long distances could be covered without translation or relaying.
(d) Maintenance of lines could be reduced to a minimum.
(e) Lines could be of very high resistance – with strength probably becoming



Circuit of the Fullerphone

the ruling factor rather than conductivity.

(f) Lines could be very leaky; contacts with foliage, etc., being of slight importance

(g) No disturbance whatever was caused to neighbouring or parallel telephone circuits, and no disturbance need be feared to telephone circuits when the Fullerphone was superposed.

(h) It would be possible to work long stretches of land line and then cable and land line again without any conversion or re-transmission, although these possibilities had not yet been tested to the limit.

To make the Fullerphone more suitable for office use, a different method of calling had been devised (instead of the military 'buzzer' calling system); and a multiple chopper could be provided, located outside the instrument room to avoid the noisy distraction of a number of choppers working together in the telegraph office.

Fuller had constructed multiple choppers to deal with 6 and 10 circuits each, driven by a 4-volt accumulator, requiring only about 150 milliamperes to provide chopping for all the instruments as well as signalling currents for all the lines.

Exchange Working

For exchange working, Fuller claimed that it made little difference to the signal whether the line over which it was transmitted was 100 miles, longer, or shorter. "Hence the present necessity for re-transmission at intermediate stations is removed and direct through plugging can be employed."

He also claimed that by the use of auxiliary apparatus the system could be used for recording of signals at relatively high speeds. By means of a special relay designed by Capt. L.B. Turner, RE, modified for high speed work, "the aural signal received can be readily made to operate an ordinary telegraph relay

at high speed, hence direct-printing systems such as the Creed can be employed."

"In the same way, the signals received can, after amplification, be uprighted and made to give beautiful records on a siphon or other recording device."

Cables

Fuller reported that he had not yet had an opportunity to ascertain to what extent the system could be applied advantageously to cable practice. However, he felt that with the (then) current knowledge of amplifiers, and the possibilities opened up by experience with the 3-electrode valve, great advantages in submarine telegraphy were assured.

The normal audible signal from the Fullerphone was suitable to apply to the grid of an amplifying valve via a suitable transformer.

Conclusions

Summing up, he stated that for military work the Fullerphone had practically superseded the vibrating system formerly employed. It was now being tried for working long lines in back areas where it would almost certainly replace all Army hand-worked Morse sounder sets. These Fullerphones were to be of two patterns – the trench Fullerphone, weatherproofed and well protected, for the forward area; and the office pattern further in the rear.

"For civilian use, one cannot expect sounder sets that are established and giving satisfaction over well-constructed routes to be discarded in favour of Fullerphones; but it is expected that the advantages to be derived from the new system will lead to its adoption in countries not already thoroughly developed from a telegraphic standpoint.

"An opening should also arise in tropical countries where maintenance difficulties are considerable – and it is probably not too much to say that the system would give satisfaction wherever difficulties from any cause render Morse sounder working precarious.

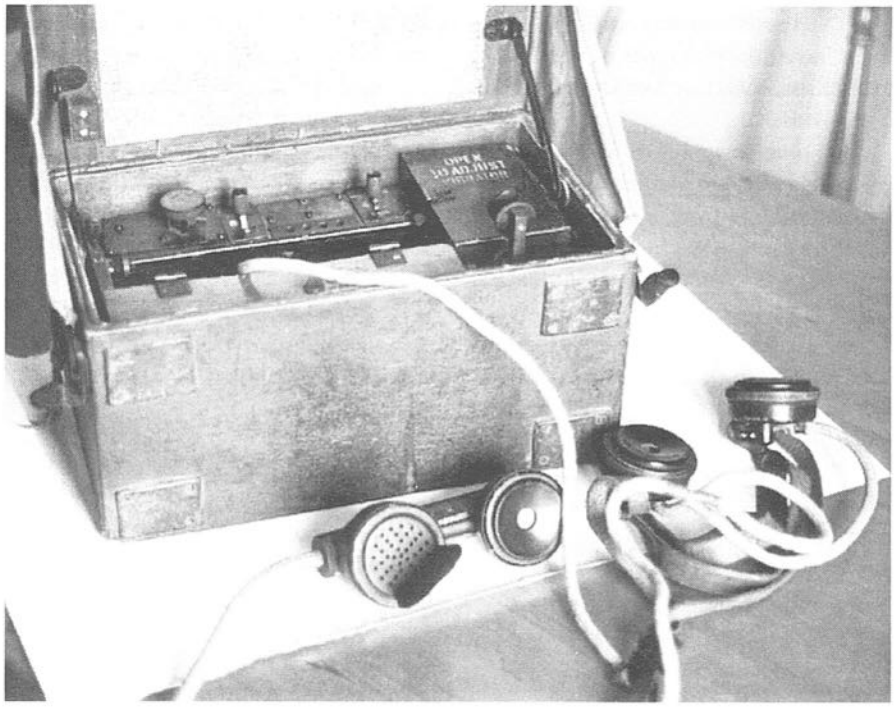
"For cable work the author feels – with due deference to certain experienced submarine telegraph engineers – that an investigation of the possibilities of a system combining Fullerphone, amplifiers, special existing relays, and recording and printing devices, would prove very profitable."

Early Difficulties

In the discussion that followed, there was a mixed, and sometimes hostile reception to Major Fuller's paper, especially to his suggestions concerning the possible use of the Fullerphone in civil telegraphy.

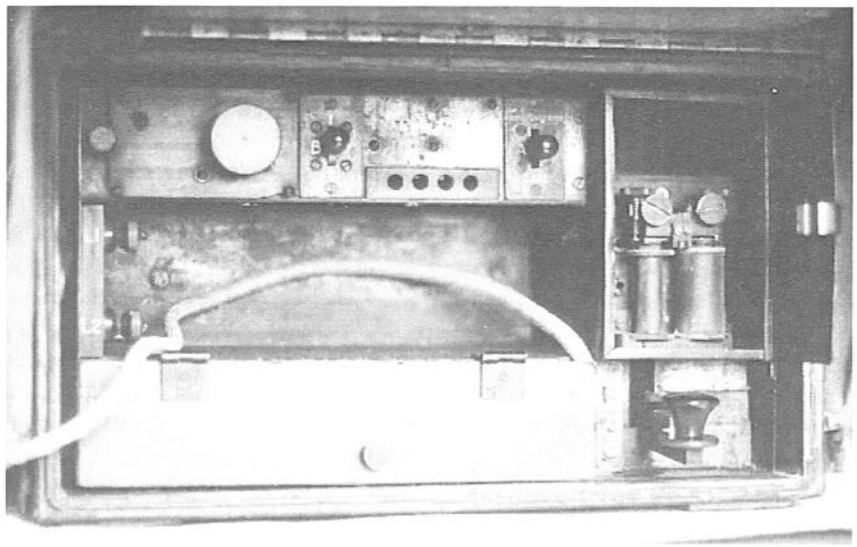
Lieut.-Colonel Evans, RE, referred to difficulties that had occurred in the Army on the first introduction of the Fullerphone. It was introduced in a hurry and sufficient previous instruction in its use could not be given. This resulted in considerable prejudice against the instrument which was gradually being overcome, although a good deal still remained.

He attributed this to the lack of instruction in the first instance, to certain defects in the earlier pattern of the instrument, and to the fact that numerous patterns were subsequently produced,



Fullerphone Mk.III, 1918. Note folding key

Photo/Collection: Pat Allely GW3KJW



with the result that two ends of a line might have different types of instrument "which the operators could not explain to each other".

One other original difficulty, which was not properly explained to users, was the disturbance from earth currents or leakage currents. The instrument was redesigned, and a potentiometer introduced to overcome the problem, but again lack of instruction created great difficulties that could have been avoided had there been more time in which to instruct both operators and officers.

Although there was still some prejudice against the Fullerphone, it was the intention that it should be widely adopted in the Army, although it was not yet possible to say when the sounder or buzzer would be discarded.

Prior Invention Claimed

Reference was made at the meeting to two earlier specifications of a French telegraph engineer, Clement Ader, generally on the same lines as the Fullerphone, namely weak DC currents to the line, chopped up by rotary commutators at the receiving end. These were covered by Patents Nos. 7625 and 17528 of 1887 *(see MM26, p.15, for more details of the latter. – Ed.)*.

Mr A.C. Brown, while congratulating the author on the way he had worked out the Fullerphone – which he was inclined to call the 'Brownphone' – also claimed prior invention. In 1896 he had invented and patented a complete set of apparatus almost exactly like the Fullerphone, under Patent No. 30123 of that year.

It was made principally to work through broken lines or cables. His instruments had been used for working through broken submarine cables by the Direct United States Cable Company, and had maintained communication through broken cables for a considerable time; they were also used by the Europe and Azores Company and, he believed, some were used by the Eastern Telegraph Company. This apparatus was offered to the War Office in 1897, but it was not wanted then "because it was too early."

Defence of Major Fuller

Major E.O. Henrici, RE, after describing the development, and later disadvantages, of the Army's earlier vibrator system, now gradually being replaced by the Fullerphone, defended Major Fuller's invention. From the remarks made at the meeting about prior invention, he commented, it might appear there was nothing new in the Fullerphone but he disagreed. He also pointed out that the name was NOT proposed by Major Fuller.

Major Fuller's concept which enabled a direct current to line to be interrupted at the receiving end, so as to actuate a telephone receiver, while allowing no detectable ripple to appear in the line current, was new. If such a combination had been suggested previously, it was not known to the authorities of any of the powers engaged in the war, and was not used in the Army until Major Fuller suggested it; and it was immediately copied by other powers, including Germany.

Mr G.H. Nash, said "I have been listening tonight to some very pointed

criticisms which one expects to receive in a technical institution, but I could not help feeling sorry for the author in the face of these. The condition at the Front was dreadful. I suppose thousands of men have been killed because of overheard circuits by the Germans, and the author has, I consider, saved a large number of lives by doing something in the years 1916–17 which settled the question of overhearing messages at the Front.

"Whether his patents or details are new or old matters little; the fact is that he did do it at that critical time, and we all owe him our thanks for it. I can only say it was a pity that people who had that information did not bring it forward in 1914."

Matter of Regret

Referring to the German monitoring of British buzzer circuits, Mr W.J. Thorrowgood commented that before the war it was common knowledge and a well-recognised fact that conversation or telegraphic signals on single-wire circuits could be picked up on telephone receiving instruments; also, if secrecy was desired, a double-wire circuit would give the secrecy desired.

He thought it a matter of regret, in view of the losses suffered, that the military authorities were not aware of these well-known facts and were surprised to find that the Germans were receiving their signals. However, he congratulated the author on adopting these principles in 1916, thus getting over a very serious difficulty.

Referring to Major Fuller's suggestions on the use of the Fullerphone in civil telegraphy, Mr Thorrowgood thought the time had come when telegraph signals and signalling were out of date and that stress should be laid on telephone communication between various places instead of telegraphs as they were at that time.

The administration with which he was connected (*not stated. – Ed.*) was introducing telephony to supersede the telegraphs as much as possible. The single-needle or Morse telegraphs were barriers to direct communication between principals, but telephones facilitated direct conversation. He advocated the telephone and thought it had many advantages over this or other telegraph systems, except in special circumstances.

Telegraphists Preferred Sounders

Mr H. Wilson had not the slightest doubt that if the great majority of telegraph operators were asked, they would vote in favour of sounders rather than buzzers as being less trying to read, quite apart from the fact that with buzzer working they had, of necessity to wear headgear receivers.

He thought that the savings in battery power outlined by Major Fuller were more apparent than real, taking into account the fact that the telegraph offices of that time had to have large accumulator systems anyway for other work.

He also thought that the wiring of a Fullerphone office would be more complicated than for sounders, involving separate earths for each Fullerphone, and after comparing the multiplicity of components, switches, etc., in the Fullerphone with a simple polarised sounder (one condenser and a single

current key), suggested that the case for simplicity had not been made.

He also doubted the claim that very long distances could be covered without translation or relaying. He agreed with the author's conclusion that the Fullerphone had many outlets for good service, but thought it a mistake to try to magnify or exaggerate the uses to which it might be put.

Unnecessary Loss of Life

Lieut.-Colonel A.C. Booth felt that the discovery of the Fullerphone was not made early enough in the war and that many lives were lost unnecessarily before it became available. However, there were several other instruments less capable of being tapped than the vibrating buzzer, and he thought these could have been used in forward areas in the early days of the war.

The ordinary sounder was one, and another was the Wheatsone ABC which was extremely difficult to tap. There were some hundreds of the latter available, and they were recommended to the signal authorities on several occasions to no avail.

He offered constructive criticism of the Fullerphone on several counts. Its *raison d'être* was that it should not be tapped, but the addition of a telephone was the most perfect means for this to be done. Despite regulations to the contrary, there was always the temptation to use it for just a few words, but those few words could mean losing a battle. He urged the author to have the telephone taken off the Fullerphone.

He also criticised the potentiometer provided to eliminate the effects of earth currents, which he said was unpopular with operators who did not fully understand its function. He preferred simplicity for those in trenches or dugouts, and suggested the potentiometer could be omitted.

Limited Use in Civil Applications

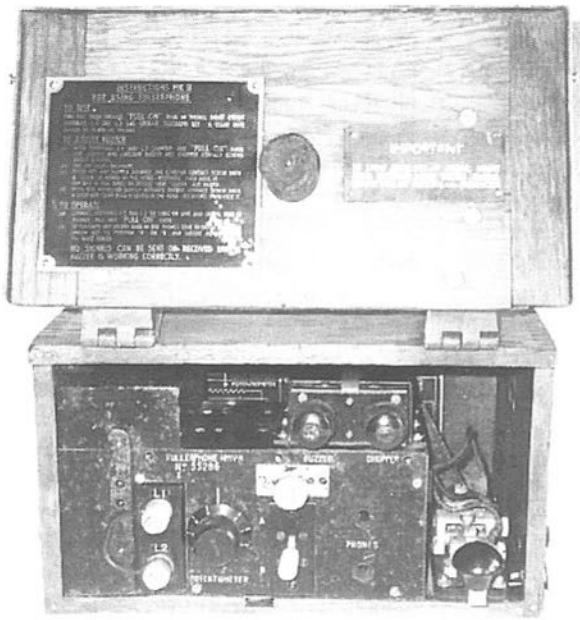
Mr E.S. Ritter (communicated) thought Major Fuller deserved great credit for developing an instrument which undoubtedly met a serious military need at the time it was produced. However, he felt that the military authorities deserved a certain amount of censure for not making a want of this nature more widely known amongst those who should have been in a position to supply the want.

The ideas underlying the instrument had been known for a long time, but it was to the credit of Major Fuller that he had put them together in the form of a good practical working instrument.

With regard to the use of the instrument for civil work, however, he felt this would be strictly limited in its present form, because of its susceptibility to slowly-varying earth potentials; its unsuitability for high-speed working; the need to use headphones, which might be unacceptable to operators used to sounder operating; and the fact that the 'interruptor' required occasional adjustment.

Despite these objections, he thought the instrument could be used to advantage as a telegraph 'speaker' to link up various testing offices and linemen's huts along a main underground or overhead route. Linemen in search of faults might carry it as a portable set.

It could also be used to replace Morse



Fullerphone Mk.IV, 1939, with Key Signalling No. 2 (landline version of the Key WT 8 Amp). This redesigned model was more sensitive and easier to use than its predecessors. A tropicalised version of the Mk.IV was designated the Fullerphone Mk.V

Photo/Collection: Jack Barker

sounder circuits where for any reason they might be causing disturbance to telephone or other circuits. It might also be used to connect sparsely populated country villages to towns some distance away, with the telephone fitted to the instrument proving of some additional use.

Author's Response

Replying to many of the comments made, Major Fuller (communicated), indicated that his early design did include the potentiometer, which was ruled out by the authorities partly for the sake of simplicity and partly to speed up supply. After experience confirmed the desirability of including the potentiometer, it was introduced into the later models.

He denied contemplating 'the universal employment of the Fullerphone in civil telegraphy', as had been suggested by one speaker, but still held the views expressed in the 'conclusions' to his paper, as indicated above.

Regarding Mr Brown's claim to prior invention, Major Fuller commented that as, according to Mr Brown, it was 'made to work through broken wires or cables', there must be some radical difference between it and the Fullerphone as the one condition for which the latter was useless was that when the conductor was entirely broken.

Though no doubt the action of the War Office in 1897 was disappointing to Mr Brown, since it was not administering long submarine cables, their action was at least defensible. He went on to ask why Mr Brown had not put forward his device in 1914?

Military Scientific Development Secret

Major Fuller indicated that the Allied military authorities were quite alive to the fact that messages could be

overheard to some extent, as were the other belligerent Powers. The matter only became serious when the amplifying valve was developed during the early stages of the war.

He commented that it still appeared to be taken for granted in civilian circles that the technical military authorities were behind their civilian confrères. This impression should be erased. The fact that military scientific development was of necessity carried on behind a screen and without publicity should not be overlooked.

Limited Vision

Responding to Mr Wilson's criticisms, Major Fuller thought that certain telegraph engineers, especially those from the British Post Office, seemed to have their vision limited to the extent of the British Isles. He was not expecting the Fullerphone to displace established systems, but he did conceive its use in rural locations in countries with vast spaces, such as the Argentine, Canada, China or Russia.

Concerning Mr Wilson's remarks about the complexity of wiring for Fullerphone offices, he had intended to convey the information that where there were Morse sets and Fullerphones working in the same office there should be two, and only two earths – one for the Morse sets and one (common) earth for all the Fullerphones.

With regard to Mr Wilson's claim that the great majority of telegraph operators would vote in favour of sound reading rather than buzzer, Major Fuller had found that telegraphists were very faithful to their first love. Those taught on sounder preferred sounder. Those taught on buzzer preferred that instrument. As the greater number of telegraphists at that time (at any rate, in the Post Office) were sound reared, their opinion would doubtless favour the sounder.

Robust Response

Regarding Colonel Booth's comment that the ordinary sounder and the Wheatstone ABC could have served in forward area instead of the vibrating buzzer, he doubted whether it would have been possible to work with these instruments. Considering the very leaky conditions of the cables, the expenditure of battery power would probably have been excessive.

Major Fuller's paper and much of the discussion revolved around technical matters and the circuitry of the Fullerphone (*described in MM5. – Ed.*), but as can be seen above the main impact was a critical reception of Major Fuller's invention and his suggestion that it could be used on civil circuits, by a number of civil telegraph engineers, and a robust response by others, including Fuller himself, to the criticisms made.

As Mr Nash commented during the discussion, pointed criticisms were to be expected in a technical institution, and it appears to have been a very lively and interesting meeting.

Universal Adoption Delayed

Major-General Algernon Clement Fuller, CBE, died in 1970 at the age of 85. His 1919 forecast that the Fullerphone would replace all Army hand-worked Morse sounder sets took longer

to come to fruition than he anticipated.

It was not until the early 1930s, when the Post Office began to abandon Morse operation, that the Army, realising it would lose a ready-made reserve of PO trained telegraphists, decided to adopt the Fullerphone universally for its land-line circuits. Even so, sounders survived in the Army into WWII, as evidenced by 'What Happened to the Sounder', MM4, p.4, and 'I Like the Sound of Morse', MM17, p.16.

The much maligned buzzer field telegraphs also went on, too, virtually up to the beginning of WWII, when the Telephone D Mk.V came into service, retaining a facility for Morse communication which, in practice, was rarely, if ever, used. (*An article, 'Morse Telephones' by John Packer which discusses this in more detail will appear in* MM *shortly. – Ed.*)

No evidence has been discovered by *MM* that the Fullerphone was ever used for civil telegraphy in any of the ways suggested by its inventor in his paper to the IEE. If any reader is aware of any facts to the contrary, please contact *MM*.

Poetic Appreciation

The following untitled, uncredited poem which describes how the Fullerphone worked, appeared in the Journal of the Royal Signals Institution, 1965, and is reprinted by kind permission of the editor. The 'D3' mentioned is the Telephone D Mk.III, the workhorse of forward area line communications in WWI, which utilised the straightforward buzzer system found to be so susceptible to enemy monitoring.

MM

In the good old days when the D3 buzzed,
the current alternated,
And Jerry heard all the news that came,
he simply sat and waited.
Then Captain Fuller came along
to put this fault correct,
Said he, 'This current talks too much,
I'll make it go direct.
And old D3 he danced with glee until
he had a fever,
'You'll never get a buzz', said he,
'That way in a receiver.'
So Captain Fuller bit his lip, and then
again he spake,
'I'll interrupt the current with a
rapid make and break.'
'Ha Ha!' laughed old D3 again, 'Ha Ha'
he sneered, 'That's fine,'
'You've merely got a current then that's
very much like mine.'
Then Captain Fuller turned on him and
shouted 'Get you hence sir,'
'I'll soon upset your little game by
fetching a condenser.
'He'll watch the current all the time,
as keen as a retriever,
'And keep it in the line direct, but
broken in receiver.'
'But even then', cried old D3, 'I think
you've bought a pup,
'The lines of force are still quite
strong, the Boche will pick them up.'
But Fuller, laughing, said to him 'I'm
very glad you spoke,
'Reminding me that all I need is just a
simple choke.
'Then gently as a maiden's breast the
lines of force will rise,
'For everything the choke can catch he
strongly modifies.
'And just to help him at his job another
choke there'll be,
'To stop all poaching currents from a
jealous old D3.'
And thus the Fullerphone was made, it
greatly hurt the Kaiser,
Because we buzz buzz buzz all day, and
he is none the wiser!

Showcase

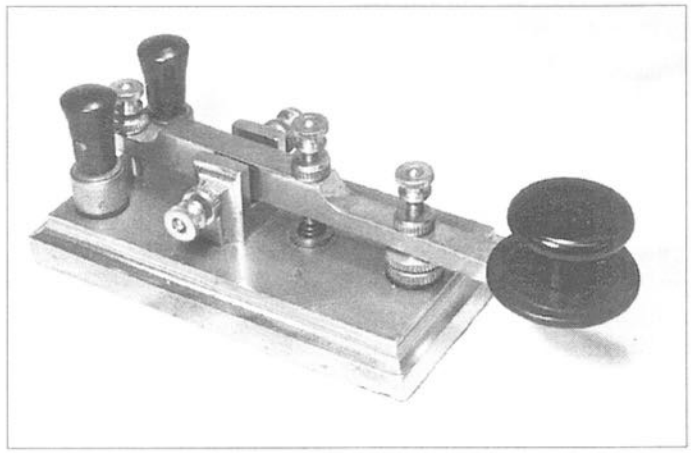
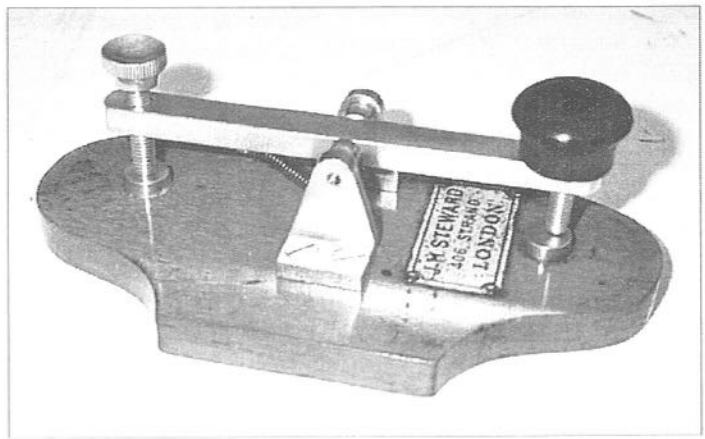


Photo: N1KPR

'Spark Key', home-brewed by Robert W. Betts, N1KPR, brass on a bronze base. 'The knob, skirt and terminal nuts are bakelite for insulation. The contacts have been tested at over 1.5 kilowatts with a 120-volt line. The name is appropriate: when testing it at 60Hz into a dummy load, the room filled with blue lightning (plus the attendant ozone and UV).'



Photo/Collection: Wyn Davies

Practice Key marked J.H. Steward, The Strand, London

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

Long Route to the Code

by Carl G. Lodström
SM6MOM/KQ6AX

MY LONG ROUTE to learn the code started in 1959, driving my moped through snow and rain to the other side of Gothenburg and the FRO (Defence Radio Organisation) to attend classes. However, I never learned it even close enough to pass a licence test.

A few years later the Navy tried to teach me the code, and I got a little further this time, but still not good enough. So they had me fix radios instead, for which I already had a good education.

With the Herring Fleet

A year later, still in the Navy, I was on a minesweeper assisting the Swedish herring fishing fleet off the coast of Norway. The radio operator was a bit too 'refreshed' to get out of the bed and receive the weather, and asked me to do it. I certainly didn't have the speed, and was not even sure of some of the letters(!) but I was a bit soaked too, so I agreed.

I went up to the radio shack, turned on the receiver, tuned to the frequency 'sparks' had mentioned, and there it was. It came from Scotland, and I got almost all of it! A few letters missing here and there, but clearly understandable. Thanks to my condition, I was completely relaxed. I didn't get hung up on the letters I missed, but just went on. Normally I would have missed almost all of the message.

I went to the Captain with the result. He asked if 'Sparks' was OK, and I swayed and said he will be fine tomorrow. He smiled and said 'thanks'. The code was not easy to receive. I still remember how the Scotsman was hanging on to the long ones and rattling away the short ones. At least, he was to my ear. The speed must have been at least 12 wpm if not 15.

Code-free Licence

Then, in about 1971, a 'code free' amateur radio licence was introduced in Sweden and I got SM6CVV. After about ten years I moved, and somehow the renewal reminder never got forwarded and remained unpaid. So I lost my call and became SM6MOM instead. However, I still felt unhappy at not being a 'real' ham. There was nothing to prevent me from doing CW on 144MHz, but I just did not get around to it.

Late in 1972 a friend of mine got a job to run a ship down to Africa from Sweden. He is a first officer in the Swedish merchant navy. He did not like what he saw of the electrical and electronic installations, so he asked if I wanted to come along to keep an eye on things. Sure! Great opportunity! Free lodging and the trip home.

At this time I was just over halfway through engineering school, and they could wait a month. However, it took three months, and I almost got booted out of school! Luckily I had had no absence in the earlier years, so I think that saved me.

How to Approach Harbours

We got to Falmouth to wait for weather to cross the Bay of Biscay, and there the receiver gave up. It was one transistor in the DC-DC converter of the tube radio and this was easily fixed. Off we went, we crossed the Biscay and arrived at Lisbon in the evening after sunset.

The 'Guide to Port Entry', the 'phone book of how to approach harbours' said to call on VHF (which we did not have). Otherwise we should call with an Aldis lamp, sending A A A A along the land contour. We were a good mile out, and Lisbon is a good size city with thousands of lights visible from the sea!

The three guys on board who were the Merchant Marine officers decided that I was better at Morse code than they were, since I was a ham operator. I told them that I was a code-less ham and, after all, they did this kind of thing for a living. Despite that, I ended up having to do it!

Felt Like a Million Bucks

I flashed the A A A A A A, sweeping the city as I saw it, regarding it as a lost battle. Nobody would see my signal, and even if they did I would never see the response! Well, there came back a light blinking from one point among all those lights, but I had no idea what they were sending!

Panic! Somehow the string of blinks ran through the brain again. I 'put a tone to it' and with some difficulty got 'WS?' W was one of the characters I always mixed up with G. OK, what did 'WS?' mean? Another flash of insight suddenly spelled out 'What Ship?' and I figured that must be it.

What was I supposed to answer? Then I remembered the callsign on the wall above the old 2182kHz transmitter. So I decided that 'SGVK' was better than 'M/S Martha from Gothenburg', and sent it. The response was an immediate 'R', which I felt good about.

The whole thing had taken only a few seconds and I regarded it as a toss-up that anything would come out of it, but I was wrong. About half an hour later the pilot came out and guided us in. I felt like a million bucks! All this, just from being able to handle a few letters in Morse code!

Last Leg

The last leg of the trip was to Bathurst in Gambia. The 'phone book' told us to alert them on 2182kHz at least 24 hours in advance. We tried, and tried, and tried. No response, and this was supposed to be a monitored emergency frequency! Finally we went in anyway, and a few miles from the harbour another Swedish

ship told us (on 2182) that 'It's easy. Just a slight bend along the river, tie up by the pier under the yellow Caterpillars, that place will be free for another 4–5 days! They are just trying to make a few bucks on pilot's fees when it's not necessary!'

We tied up, and within minutes an old Mercedes came down to us and what proved to be a very disagreeable 'Minister of Marine Affairs' told us to get out again! I told him that we had tried to call them on 2182, but that they apparently were not in the habit of monitoring the emergency frequency.

'Did you make a note of it in the log book?'

'No, I received no answer.'

'I could put you in jail for that!'

So, the tone was set. We later found out that this 'Official' had an interest in the only other river cruiser, and he did not want competition. Fortunately, it wasn't my problem.

Asked about the Dow-Key

Ten years later I realised that I couldn't afford to live in Sweden any more, so I emigrated to the US, to Santa Barbara in California. The winters are not so rough there!

After a few years I got a job as Senior Design Engineer for Dow-Key Microwave, making coaxial relays. The company had been bought in the 1960s from Mr. Dow by Kilovac, under which it was now a division. It was located in Carpinteria, just south of Santa Barbara.

I asked around about the Dow-Key, but all I found out was that it was a bug that could be rotated so it did not have to be operated in a purely horizontal way, making it less tiring for the operator. At this time Dow-Key split off and became their own company. Now they are located here in Ventura, but I haven't heard from them since they decided they only needed one engineer, and it wasn't me!

At this time I met the lady I subsequently married. We have two kids, and it is now ten years later! A few years ago, my oldest son, Philip, won a 220MHz mobile station at the Santa Maria Swapfest. I decided he should get a 'real' licence and took him off to the Morse code classes held by our local club.

Since I had to drive him there, I sat in too. Against all the odds I picked up some code, and passed the 13 wpm test. I went on, and in 1995 got an Advanced ticket, KQ6AX.

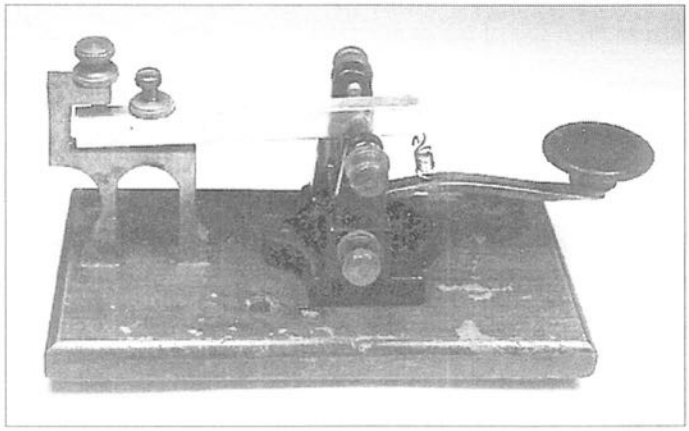
It Only took 36 Years

So, the circle is closed! It opened when I was 17 and closed at the age of 53. Let it be said that during all these years I never thought that Morse Code should be dropped as a requirement for operation on the HF bands. It has obvious advantages, very clear to the readers of *MM*, and even if it is a 'man-made obstacle' on the road to the HF licence, so what?

Where is it written that everyone is entitled to everything without an effort in return? I tell the no-coders: 'You will appreciate it so much more once you get it! And don't tell me that you can't learn the code. If I can do it, so can you!'

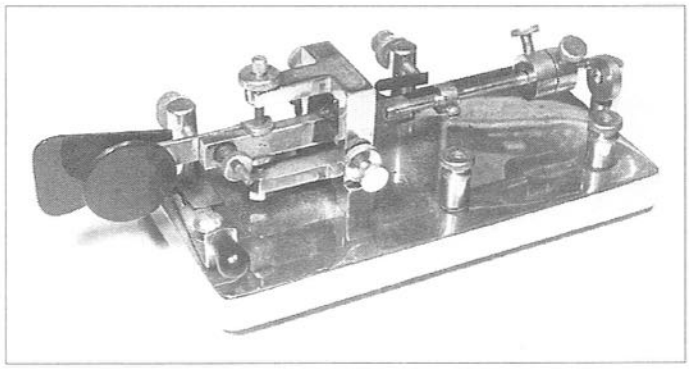
It took me 36 years, but I didn't try all the time. Philip is almost at 5 wpm for his Novice ticket. He's a bit lazy too, but he will get there! ***MM***

Info Please!



Photo/Collection: Dave Pennes WA3LKN

Mechanical Morse Training Unit. Info on manufacturer requested



Photo/Collection: Bob Betts, N1KPR

Unknown bug. All chrome, with cast steel base. Channels cast in bottom of base for wire runs. Info requested

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Readers require further information on the keys, etc., featured here.
Please write to Tony Smith, 13 Morley Road, Sheringham, Norfolk NR26 8JE
if you can help.
All useful information received will be published in MM *in a later issue*

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

MA-K6 Key

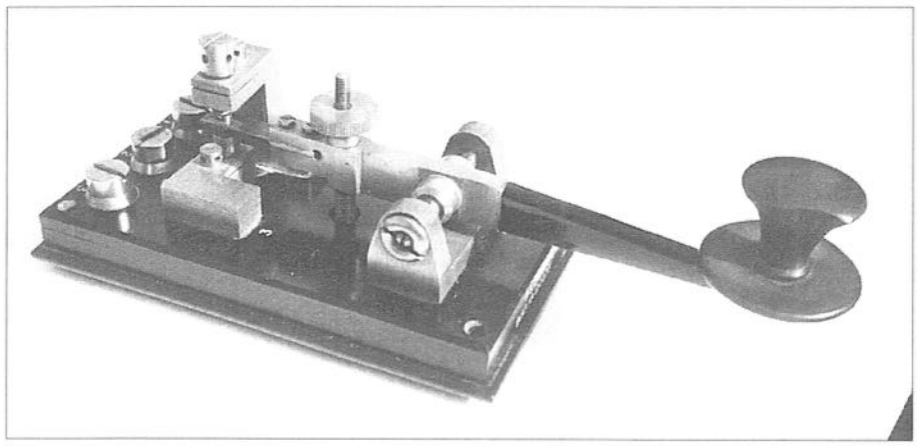
In MM57, p.45, Motoaki Uotome identifies the unknown key at the bottom of p.39 of MM38 as a model MA-K6 made by Ohshima Denki Kogyosyo Co. Ltd, Tokyo, Japan.

It would appear from this that the key shown in Fig. 2, p.15 of MM16 (described as a Marconi key used at Drummondville, Quebec, 1926–1963) has also been identified.

John Elwood, WW7P
Phoenix, Arizona, USA

(In MM58, p.46, Jean le Galudec also referred to the Drummondville key noting that in the AWA Review, vol. 3, Murray Willer says it was possibly made by Ericsson. Murray also wrote about this in MM40, p.45, when he commented 'it would appear that Marconi supplied these keys with their transmitters during the early 20s, but they may have obtained them from another supplier. The design is not typically Marconi, but rather resembles the old Swedish Ericsson telegraph key with its long lever, and with both contacts at the rear of the lever. It was certainly not unusual for transmitter manufacturers to obtain their keys from companies who specialised in them, and it is even possible Marconi bought the keys from Ericsson.'

Other keys of this type, marked P.S.213A, are owned by several



Photo/Collection: Wyn Davies

Key P.S.213A

readers, and there is a general feeling that this is a Marconi key, engendered perhaps by comments from D.A. Coe, G4PZQ, in MM33, p.45, commenting on an RAF key 10F/8782, which also bore the marking P.S.4707G, saying of the P.S. number 'Surely this is a Marconi Part or Drawing Number (or both).'

Additionally, John Francis, G3LWI, recalls that keys of this type were fitted in Marconi DFG26 sets, albeit with Key WT 8A knobs.

It's only a long shot, but is it possible that the reference 'MA' on the Japanese key is a reference to 'Marconi', and that this key might be a copy of a Marconi design, manufactured under licence from the Marconi Company? Can any reader comment on this possibility? – Ed.)

Well Presented Review

MM59 arrived here two days ago – and has been studied cover-to-cover! The review of the RSGB/RA code/licence fiasco seems to me to be very impartial – and well presented.

A great issue!

Fred Johnson ZL2AMJ
Upper Hutt, New Zealand

(Thanks Fred. While MM *obviously supports Morse, we do feel it is important to report what 'the other side' are saying as well! – Ed.)*

Star-Masterkey – Problem Resolved

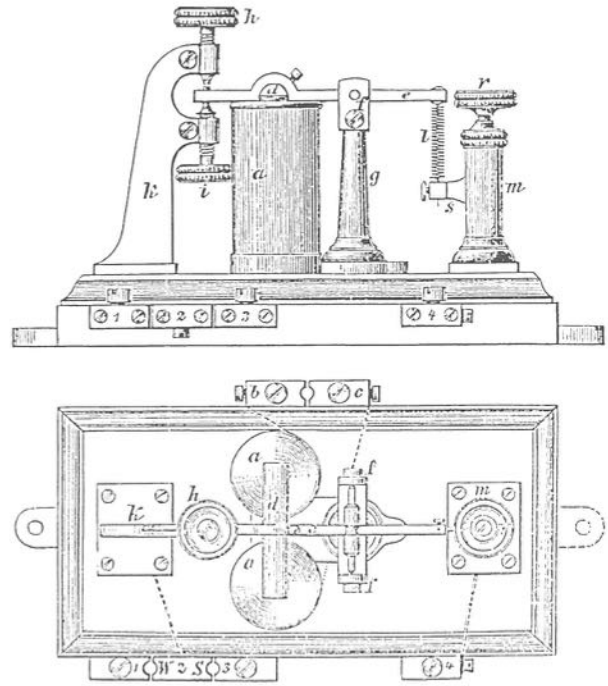
In MM59, p.58, you printed my request for help with my Star-Masterkey. I'm pleased to report that I subsequently

Unknown Sounder, MM59

Clive Redfern's sounder on p.35 of MM59 is not a sounder but a relay. Many 19th century telegraph books illustrate this, and I enclose a typical example, (see drawing) which is similar to the ones I have. More recent relays are of course of a quite different design.

I have the impression, however, that the photo shows an instrument also of more recent manufacture which may be a replica.

Fons Vanden Berghen
Halle, Belgium



received a letter from reader Colin Blunn G0IFM, who offered to send me a copy of his manual. My thanks to both Colin and to *MM* for helping me sort out my problem.

Cliff Baron G0HXQ
Greater Manchester

Unknown KOB, MM59

With reference to the Unknown KOB marked 'W. Gurlt' on page 34 of MM59, W. Gurlt was a German manufacturer based in Berlin. They also made classic registers and registers for military use (I have a portable one).

Fons Vanden Berghen
Halle, Belgium

High Speed CW

I'm wondering about the practicalities of high-speed CW. Recently, a friend turned the wick up on his Tono to send to me at 40 wpm, which was fine. Then he went up to 50 but neither my speaker nor my headphones could handle it. He was putting out a very strong signal and maybe he was swamping me and I should have used the attenuator to cut it back a bit.

This brings me to comment on about some of the stories I have read in *MM* from time to time about operators who claim to send and receive at 60 wpm, etc. When it comes to sending I reckon I can slip along with the best of them on a bug, but I think about 35 wpm would see me out. I find it hard to believe that anyone can do 60 wpm, although I concede that a good hand with an iambic keyer could probably do better than a mechanical bug. But 60?? I am not so sure!

Also, to receive at 60 wpm means you are reading at 5 letters a second. Perhaps if I could find something that could reproduce the signal without distortion I might be convinced.

John Houlder
Charnwood, ACT, Australia

(We would be pleased to receive comments from high speed operators on this subject. – Ed.)

CW Will Never die

May I take this opportunity to congratulate everyone at *MM* for all your hard work and dedication in producing such a fine magazine – and my very best wishes to the new partnership.

CW of course will never die, and will come back into its own in the hard days ahead, when we will have to treat it as more than just a hobby.

Robin B. Phillips, ZB2JK
Gibraltar

Reminder of Schooldays

The article in MM59 about SEL, etc., was interesting. It reminded me of my schooldays. After leaving school in 1947 I was going to be a Radio Officer and see the world. However, I came to the Isle of Man in 1948 and stayed put! There's not much call for an R/O on the Manx hills!

All the best to everyone and thanks for *MM*. I'd like to wish Zyg the best for the future in taking over *MM*.

Guy Warburton GD0LQE
Isle of Man

(Our thanks to the many readers who have sent their thanks and good wishes. We will be saying 'goodbye' properly in the next issue, MM61. – Ed.)

Unknown Key, MM59

The key belonging to Stephen Smith, VK2SPS, on page 35 of MM59 bears a marked resemblance to the unknown key from Dennis Goacher on page 26 of MM27, which in turn appears to have some kinship with the 'Ferranti Key' mentioned in MM21, p.25. Bearing in mind that the 'Ferranti' key was refurbished by GM3DDE who had not seen the original, but worked from a gut feeling of what it should be like, there's an uncanny likeness.

Lee Grant G3XNG
Kirkhill, Northumberland

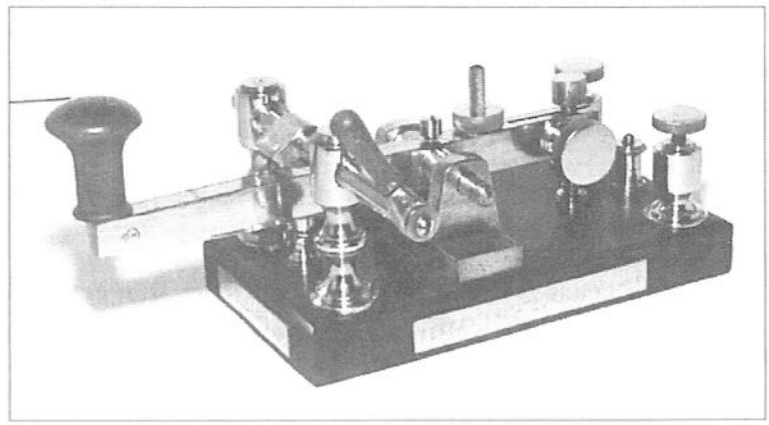
(Showcase MM21 included what was originally thought to be a railway telegraph key, refurbished by the late GM3DDE for use as a club trophy by the Ferranti Amateur Radio Club. In MM22, we reported that the key had been identified by Arthur Milne, G2MI, as follows:

'It was originally a masthead-light key rescued from being thrown into the sea from HMS Barham *early in the first world war... I used it in my station for many years and in fact made my first QSO with it on 440 metres in 1924... In 1938, I gave the key to a good friend of mine, Forbes Adam, GM3ZD...*

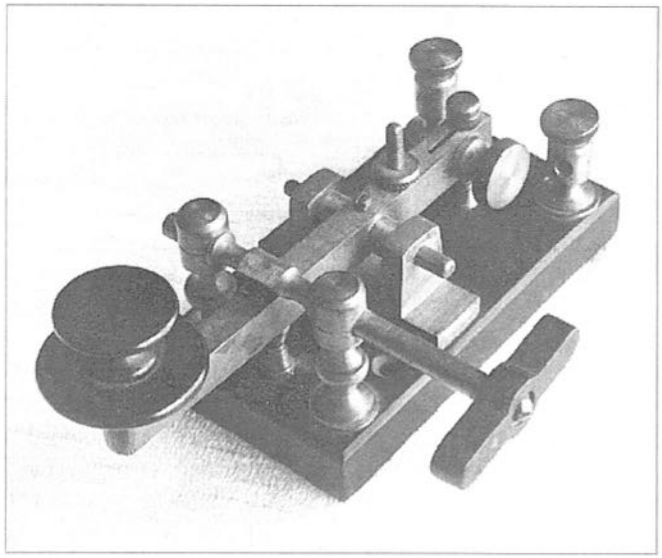
'From that time, I lost sight of it. Forbes died some years ago and I had no idea what had become of the key until I saw a photo of it in the RAOTA magazine and instantly recognised it.

'As the Ferranti Club has now become defunct, the key has been very kindly returned to me by Alf Coutts, GM3KPD, and will remain as one of my treasures ... It has been restored beautifully. The only part not original is the key lock-down lever. This was originally black ebonite and has been replaced by a piece of material not quite the same shape and colour as the original.'

In view of the remarkable likeness between G2MI's key in MM21 and the keys in MM27 and MM59, it seems reasonable to assume that the latter are also masthead-light keys. The only reference to such keys that we have been

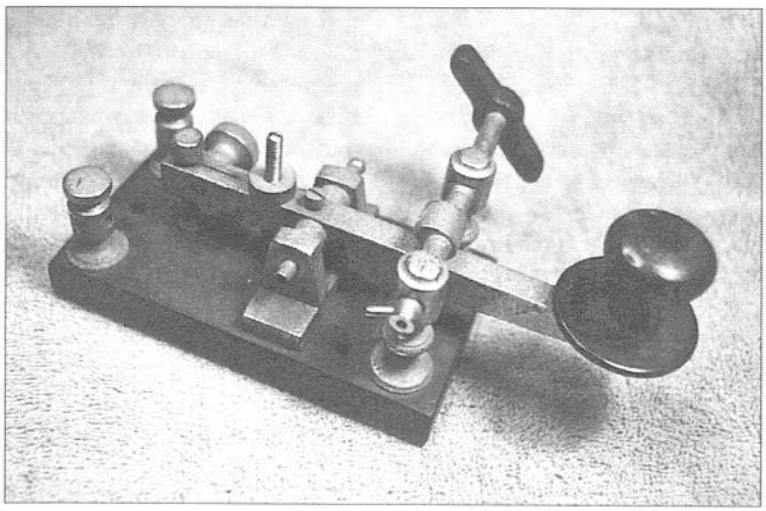


Ferranti Club Key, MM21



Unknown key from G3LLZ, MM27

able to find is in the Admiralty Handbook of Signalling, *1913, under the heading 'Flashing Lamps'. These were 'Truck Flashing Lamps', i.e., electric lamps controlled by a Morse key and used for making, or repeating and answering, general signals; and 'Yardarm Flashing Lamps' (also used as Pole Lamps for Destroyers) operated in the same way for inter-ship communication. – Ed.)*



Unknown key (VK2SPS), MM59

Confusion Clouds the Issue

Your invitation for comments in the MM59 'News Special' prompts me to write. First let me state my position so that you understand where I'm coming from. I'm an A-licensee and a Morse enthusiast. I've subscribed to *MM* since its first English edition and am very pleased that Mr. Nilski will be keeping it going.

The old saying that a problem clearly stated is a problem half solved is quite true. As your heading says, there is a great deal of confusion tied up in this matter. Confusion clouds the issue, hinders our response, and leads to poor quality decisions. Let's start by identifying what we know to be true and thereby separate the real issue from the confusing issues.

We Morse enthusiasts are worried that abandoning the Morse test will directly lead to:

- diminishing use of Morse
- loss of our Morse sub bands in the Amateur bands
- overcrowding of the HF bands by a massive influx of B-licensees
- loss of band space above 30MHz to other radio spectrum users because of the shift of B-licensees to the HF bands
- lower operating standards.

Amateur Morse enthusiasts, and some retired commercial Morse operators, are the only people with a desire to retain Morse. Commercially, Morse has been a dying duck for some time. From my own experience of knowing amateurs I estimate that around a quarter of A-licensees use Morse.

Definitely, we are not a majority of radio amateurs, which makes our position and therefore our influence precarious. For that reason alone, it is extremely important that confusions are removed and the situation seen at its clearest.

Retaining the Morse Test as a requirement for the A-licence and access to the HF bands does not guarantee the future of Morse for us. It cannot. The A-Licence has no compulsion on the A-licensee to use Morse. Each of us knows at least one A-licensee who has stated that he never had any intention of using Morse; that his only purpose in passing the test was to get on HF.

The only benefits of the Morse Test are (a) to force A-licensees to acquire a minimum level of Morse ability, which we hope will lead them to actively use Morse, and (b) to restrict access to the HF bands.

The original reasons for the existence of a Morse test are now almost extinct. These were:

- in the early years, Morse was the only mode of operation, and it was the normal mode of the vast majority of amateurs – until the 1950s when other modes progressively came into popularity
- it was intended that amateurs transmitting out of the amateur bands should understand instructions in Morse to stop transmitting.

From the above observations I conclude that the real issue at stake is whether the Morse Test should be retained or abandoned. Morse will live on in Amateur Radio for as long as there are amateurs who use it. Crowding of the HF bands will lead to greater use of Morse

Peter Davies G0KQA
Basingstoke, Hants

NEW ZEALAND POST OFFICE

MORSE CODE

ALPHABET

A ·—	J ·———	S ···
B —···	K —·—	T —
C —·—·	L ·—··	U ··—
D —··	M ——	V ···—
E ·	N —·	W ·——
F ··—·	O ———	X —··—
G ——·	P ·——·	Y —·——
H ····	Q ——·—	Z ——··
I ··	R ·—·	

NUMERALS

1 ·————	(·—)	6 —····	
2 ··———	(··—)	7 ——···	(—···)
3 ···——	(···—)	8 ———··	(—··)
4 ····—		9 ————·	(—·)
5 ·····		0 —————	(—)

(The abbreviated signals in parentheses may be used in acknowledgments only.)

PUNCTUATION, ETC.

Full-stop (.) ·—·—·—	Horizontal stroke (—) ———
Comma (,) ——··——	Round bracket * [()] —·——·—
Colon (:) ———···	Mark of interrogation (?) ··——··
Semicolon (;) —·—·—·	Mark of exclamation (!) ·—·—·—
Hyphen —····—	Double dash (=) —···—
Inverted commas (" ") (quotation marks)* ·—··—·	Roman numerals* ·—· ·—··
Decimal point —···—·	
Oblique stroke —··—·—	

Break, (used as separation, as between address and text) ·—·—·—

Invitation to transmit —·—	New line ·—·—··
Wait ·—···	Understood ···—·
Correction ·····	End of message ·—·—·

* These signals are sent *before* and *after* the relative words.

New Zealand Post Office Morse code card 1958 (see also back cover)

Note that pre-1938 punctuation signals were apparently still in use in 1958. Several changes were made to puctuation signals in 1938 notably full stop and comma; and the exclamation mark and semi-colon, both of which are shown on this card, were abandoned. Note also the signals for: horizontal stroke, decimal point, roman numerals, oblique stroke, break, and new line, all of which are unfamiliar to present day operators.

Contributed by Neville Copeland, ZL2AKV, who recalls that when he first started as a Post Office Message Boy in Auckland, in 1940, a card like this was thrust into his hands for him to learn the code, and to practise on key/sounder whenever there was a spell between deliveries.

INFORMATION ABOUT MORSE OPERATING

THE length of a dot being taken as unit, a dash is equal in length to three dots. The space between the elements of a letter is equal to one dot. The space between letters is equal to one dash; and between words, equal to five dots.

In calling a morse-working office the operator should signal its code until the call has been answered and in addition when necessary include the word "urgent".

To get part of a message repeated, give the last word received properly and . . — — . .

To get one or more words repeated, give . . — — . . between (giving the word preceding and the word following) those of which repetition is desired, thus: . . — — . . word between "this" and "be."

To signify all is understood, give the signal . . . — .

To signify "Wait," give the signal . — . . .

The key must never be held down. If it is necessary to keep the calling station waiting for several minutes, give the wait signal, followed by the number of minutes.

To signify an error in sending, give the correction signal . . . . . , repeat the last word correctly sent, and proceed.

At the end of a message give the signal . — . — . This signal also follows the signature, and must be signalled twice when the message bears no signature.

All *figures* and *doubtful words* must be repeated back.

Fractions are sent thus: $93\frac{3}{8}$ — — — — . . . — — — — . . . . . — — — . . leaving the space of two dashes between the whole numbers and the fraction.

To enable a station to adjust the instrument, send A B C, A B C.

To correct the number of words in a message, the receiving station gives the number actually received; the forwarding station then signals the initial letter of each word until the discrepancy is discovered. If the message contains groups of figures, then the *first* figure of each group equivalent to a word must be given.

The receipt of an inland message is acknowledged by repeating back the instructions, all figures, groups of figures and letters, and the number of words.

Cable messages and radio-telegrams are acknowledged by repeating the number, name of office of origin, date, instructions, number of words, all figures, and groups of figures and letters.

Reverse side of New Zealand PO Morse card (see inside cover)