

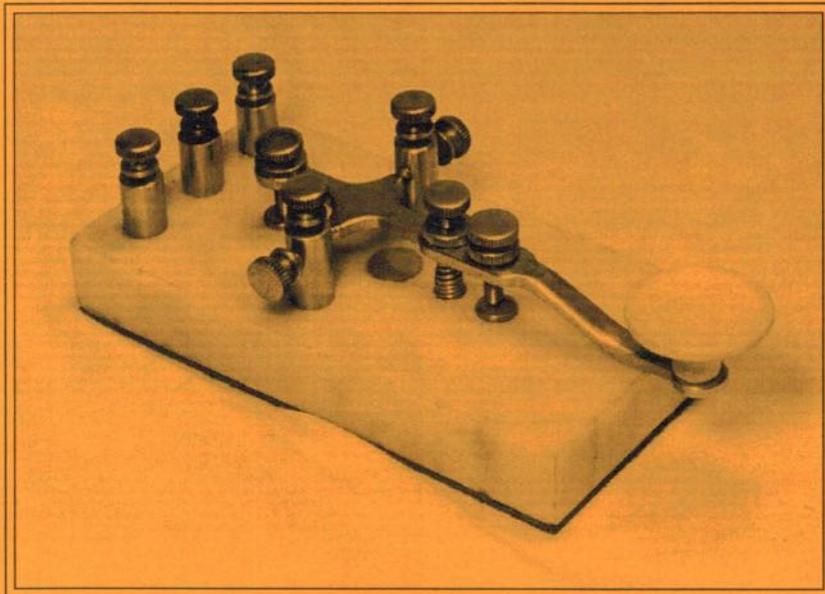
Flying  
the flag  
for  
Morse

Number 61 – Christmas 1998

# Morsum Magnificat

£2.50

*The Morse Magazine*



*"The Desk Key"*



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.

**EDITOR** Geoff Arnold G3GSR

**CONSULTANT EDITOR** Tony Smith G4FAI

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**ON OUR FRONT COVER**

*"The Desk Key" made by Robert W. Betts, N1KPR.*

*"The idea here", says Bob, "is to put it on your desk to 'show-off'."*

*Base is white marble, lever nickel-steel, knob is bone and fittings brass.*

*Photo: N1KPR*

## Comment

**A**S I WRITE this leader, my last before handing over to the new Editor (see p.48), we are contemplating the theoretical disappearance of Morse as a means of communication for merchant ships. However, as so often, theory and practice do not coincide – one has only to listen around the marine HF bands to realise that all the CW traffic there is not suddenly and mysteriously going to emigrate to other modes and systems within the next two months. The coast stations still offering HF CW services are going to become very busy!

The place of Morse in amateur radio is also in a state of flux. The push by factions in several countries to scale down or eliminate the testing requirement continues. So far as the UK is concerned, there has been no recent mention, let alone explanation, forthcoming from the RSGB of its succession of contradictory statements and proposals earlier this year. One wonders whether the archives at Lambda House have been amended to remove any trace of the fact they ever appeared.

The opponents of Morse always justify their views on the grounds of its irrelevance to amateur radio. Data modes, we are told, are the modern 'in' thing. Why? What relevance do they have to amateur **radio**? Data modes are to me synonymous with the rapid exchange of vast quantities of information, essential to modern business or warfare, but not something which amateur radio is about, except possibly where it is used to provide emergency communications in times of man-made or natural disasters.

No doubt my views on the transfer of large quantities of data were coloured by my time as a professional seagoing operator, when the ship's captain would be breathing down my neck wanting his traffic cleared in short order. Since 'swallowing the anchor' I have felt no desire to do more than chat to fellow amateurs; the idea of what is basically two computers talking to each other simply leaves me cold.

I am sad that amateur radio is changing in the way that it now seems to be. I know that I am not the only UK amateur to have let membership of the RSGB lapse, in protest at the society's recent muddled actions. Neither am I the only amateur questioning whether it is really worth renewing my licence next time it falls due.

But to end on a more positive note – thank you for all the expressions of appreciation of the magazine which you have sent recently. It's been a privilege and a joy to have been associated with its production for the past eight and a half years.

*Geoff Arnold*  
G3GSR

*MM61 – Christmas 1998*

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## IARU Supports Retention of Amateur Morse Test

Recommendations from the International Amateur Radio Union's 'Future of the Amateur Service Committee' (FASC) have been discussed by three IARU Conferences, over a three-year period, beginning in Region 1 in Tel Aviv in 1996, Region 3 in Beijing in 1997, and finally Region 2 in Venezuela, in October 1998. The purpose of these discussions was to assist the IARU Administrative Council (AC) in formulating proposals for a review of the international regulations governing amateur radio by an ITU World Radio Conference. These regulations include the present controversial requirement for a Morse qualification for amateur operation below 30MHz.

Following the Region 2 conference in October, the IARU AC met at the same venue and issued a press release, part of which reads as follows:

"The Council accepted a fourth report of the Future of the Amateur Service Committee which was prepared taking into account recommendations of the previous three regional conferences and adopted guiding principles for possible revision of Article S25. It was the view of the Council that there should be no reduction in the minimum qualifications for a license to operate an amateur station. At the same time, the Council

recognized the desirability of stating the technical and operational qualifications for an amateur license in a mandatory Recommendation rather than in the Radio Regulations themselves, and requested that the members of FASC continue to develop a draft of such a Recommendation for consideration by the Council."

A draft 'New' S25 proposed by the FASC has been attached to its latest reports. The proposed first paragraph reads: "S25.1 1. Administrations shall verify the technical and operational qualifications of any person wishing to operate an amateur station. A person seeking a licence to operate an amateur station shall be required to demonstrate a knowledge of the topics specified in ITU-R Recommendation M-XXX."

The content of Recommendation M-XXX has yet to be drafted but in view of the AC's decision it will clearly include a Morse code requirement. 'Incorporation by reference' is standard practice today, and a Recommendation (which is easier to change than a Regulation) setting out the requirements for an amateur licence would be a step towards world-wide standardisation of amateur radio qualifications.

*MM* understands that if a recommendation is 'incorporated by reference' in another ITU document it carries the same force as the original document. In the

case in point, ITU-R recommendation M-XXX would effectively be an integral part of Article S25 and would have the mandatory nature of a Radio Regulation.

If agreed by a WRC, the effect of this change of regulatory structure will be that the battle over specific regulations will be taken out of the WRC arena into the ITU-R Study Group arena where such Recommendations are drafted and developed.

It still remains for a World Radio Conference to address the matter, but cognisance will undoubtedly be taken of the fact that amateur radio organisations in some 150+ countries, through three Regional Conferences, have discussed and supported this position.

#### **RSGB Breaks Ranks with IARU**

The Radio Society of Great Britain will be unhappy at the IARU AC decision reported above. Not only is the society at variance with the results of a survey of members which produced a two-thirds majority in favour of retaining the Morse test, but it is now out-of-step with its own Region and the IARU as a whole on the question of the Morse requirement. As described in MM58 (p.8), the RSGB has reversed its earlier policy and no longer supports the retention of an amateur Morse test.

Some light is shed on the RSGB action in breaking ranks by the following extract from the Report of the IARU Region 1 Executive Committee meeting held in Senegal on April 17-21, 1998 when it was noted: "The FASC discussion process is not yet over. In spite of the decisions unanimously taken in Tel

Aviv about ITU-RR-S25, discussion within member societies especially concerning the MORSE paragraph in S25 continue."

The Chairman of the Executive Committee, Louis v.d. Nadort, PA0LOU, reported that "within RSGB a group was trying to require its Council to take an unilateral step which however could be averted, but which will see a continuation by means of proposals which probably will be made to our 1999 General Conference."

He concluded: "The Tel Aviv Region 1 Conference decided that the mandatory Morse code requirement should remain in S25 as a treaty item. We have now to await the outcome of the Region 2 Conference in the fall of 1998 and the subsequent actions of the Administrative Council on this subject." The outcome he refers to is reported above.

#### **RA Seeks Views on Morse Test Controversy**

Britain's Radiocommunications Agency will welcome the views of UK licensees in the debate on the UK amateur Morse requirement. It also wishes to see more newcomers enter amateur radio.

In a letter to *MM* reader Gerald Stancey G3MCK, dated 11 November 1998, Mr A. Abiaw of the RA wrote: "It must be emphasised that our discussions with the Radio Society of Great Britain with regard to this issue are designed to facilitate as wide an exchange of views as possible within the UK Amateur community.

"From our own correspondence with considerable numbers of individual Amateurs, it has become clear that opinions

are very divided as to the advisability of any relaxation in the current Morse Test requirement. Moreover, we are fully conscious, as the responsible licensing authority within the UK, of our obligations under the terms of international radio regulations, to ensure that any such reduction does not serve to impair standards of operating proficiency within the UK Amateur community.

“Thus you will appreciate that we have to reconcile a range of conflicting factors in our deliberations on this matter. We are fully receptive to the considerations which you raise in your letter – particularly those related to the need to ensure that existing standards of proficiency within the Amateur community are fully maintained. However, we are aware that there is also a need for us to balance these requirements against the necessity that we open up the Amateur service to as many new entrants as possible.

“... our discussions with the RSGB with regard to this matter are at present of a purely exploratory nature ... none of the proposals at present under discussion constitute points of formal RA policy, and they should not be interpreted as doing so.

“I would, finally, like to assure you that we remain fully open to all contributions both from individual Amateurs, and from organisations ... , with regard to this debate ...”

If *MM* readers, or their CW organisations, wish to respond to Mr Abiaw's invitation to submit their views on the proposed reduction of the Amateur Morse test speed, his address is: Mr A. Abiaw, Amateur Radio Section,

Floor 11 N/27.1, Radiocommunications Agency, New King's Beam House, 22 Upper Ground, London SE1 9SA.

### **ARRL Suggests CW Allocations for No-code Technicians without Morse Test**

In a special meeting on October 24, the ARRL Board of Directors unanimously reaffirmed the bulk of its July 1998 Amateur Radio License restructuring plan (reported in *MM59*, p.2) with some modifications.

Among other things, the Board's July plan would eliminate the Novice and Tech Plus licence classes. To provide a logical entry path to HF for (no-code) Technicians, the Board now has suggested offering CW privileges to Technicians in the current General CW allocations on 80 through 10 metres. Technicians would be permitted up to 200W PEP.

The Board also agreed to replace the A, B, C, and D licence class designations proposed in its July restructuring plan with the names Extra, Advanced, General, and Technician.

“The July plan eliminated the HF door by eliminating the Novice license,” observed ARRL Executive Vice President David Sumner, K1ZZ. “This is, in effect, a replacement for the Novice, but without an additional license class.”

Under the July plan – and under the FCC's proposed streamlining – the entry level HF licence would be the General, which under the ARRL plan would require passing two written examinations plus a 5 wpm code test. Board members at the October 24 meeting expressed concern that the leap to HF privileges under

the July plan could prove too daunting, especially for younger newcomers. Some also were troubled about the growing gulf between the 'traditional' HF operator and the newer VHF-only amateurs.

Addressing the Morse code requirement in the International Radio Regulations, Sumner summed up the Board's position by saying that the new privileges would amount to self-testing. "By their very nature, you can't use the privileges until you know the code," he said. "We're not expecting the CW bands to be overrun with people taking advantage of this, but as any CW operator knows, the best way to become proficient in the code is to use it on the air."

The special ARRL Board meeting was called to consider the League's comments on the FCC's amateur licensing 'streamlining' proposals in WT Docket 98-143, released in August (*reported in MM60, p.2*) ... the Board also proposed that the FCC rules ban multiple-choice Morse code tests and establish that a passing grade for a code test be either 70 per cent correct answers to 10 fill-in-the-blank questions or one minute out of five of solid copy.

The Board affirmed its proposals in RM-9196 to improve the procedures for granting Morse code exam credit on the basis of a physician's certification of a disability (*reported in MM60, p.4*). It also affirmed "its strong desire" that written exams be modified as necessary "to demonstrate better the depth of the applicant's current radio technical knowledge and operating skill."

The Board noted that it had "heard and considered the views of thousands of ARRL members" on the amateur

licensing issues raised in both the ARRL and FCC proposals.

(*ARRL Bulletin 90*)

### **SARL Proposes 5 wpm Test**

The following statement signed by Chris Turner ZS6GM, President of the South African Radio League, dated 4 October 1998, has been issued by SARL:

"At the council meeting held on 3 October 1998, the SARL Council unanimously agreed on a new initiative to make the HF bands more accessible to Amateurs by addressing the Morse Code requirement for the Amateur Service, and by encouraging school-going children to become Amateurs through a new license.

"The major factor presently impeding access to the HF bands is the 12wpm Morse Code requirement. It is the opinion of the SARL that even though the IARU supports the continuation of regulation S25.5, that there exists no good argument in favour of retaining Morse Code as the only qualifier for Amateurs to have unrestricted access to the HF bands.

"In line with the views expressed by the majority of the League's members, the SARL will support initiatives of a number of other IARU member societies such as the RSGB in overhauling the qualifications for an unrestricted Amateur license.

"Morse Code remains one of the most important forms of Amateur communications, particularly under emergency and/or weak signal conditions. It should therefore be afforded protection in terms of continued exclusive frequency allocations.

"The SARL believes the first step in

the overhauling process should be the immediate reduction in the Morse Code speed requirement from the present 12 words per minute to 5 words per minute, which still permits compliance with ITU radio regulation S25.5.

“Because the CEPT 1 license requires a proficiency in Morse at 12 wpm, Amateurs wishing to avail themselves of the CEPT arrangement will need to pass a 12 wpm Morse test. The League intends to request SATRA, the radio regulator, to change the radio regulations to introduce a new interim class of unrestricted HF license, based on a 5 wpm qualification.

“In reaching this decision the League has evaluated the reasons for the Morse Code requirement, among them the need for a simple, economic and internationally recognised language in times of emergency. To this end Morse Code should be encouraged among Amateurs wishing to join organisations such as Hamnet.

“The Amateur Service is defined by the ITU as a radiocommunication service for the purpose of self training, intercommunication, and technical investigations carried out by amateurs, etc. The relaxation (or even abolition) of the Morse Code requirement is not inconsistent with the spirit of the ITU definition of the Amateur Service.

“If the Amateur Service is to remain relevant in the 21st century, it needs to embrace and encourage the development and use of the newer technologies. Clinging to Morse Code as an entry requirement will impede rather than help this development.

“The Amateur Radio Service has an

extremely important role to play in the education of engineers and technologists in the field of telecommunications. It is therefore vital that the Amateur service attracts young people. To this end the League after consultation with its members, the regulatory authorities and educationalists is in the process of developing a practical ‘hands on’ student amateur license, with a minimal 5 wpm Morse Code exam, which is aimed at schools and school-going young people. In order to encourage ongoing development, the League will request SATRA to modify the regulations to permit student licensees full access to all HF bands but with limited RF power output.

“The League is aware that these proposals may offend a number of Amateurs, but it believes that its duty lies in promoting the future of the Amateur Service, and therefore we appeal to those who have concerns, to accommodate these necessary changes and help us rebuild the Amateur Service for the 21st century ...”

#### **PCH Radio Amateur ‘Farewell Day’**

Scheveningen Radio/PCH, which claims to be the longest established maritime radio service in the world, will close down permanently on 1 January 1999, one month ahead of the official GMDSS implementation date of 1 February 1999. Information about the history of PCH and the circumstances leading to its closure can be found in MM37, p.6, and MM53, p.2.

As a last event, and to celebrate its 94th birthday, PCH is holding a Radio Amateur ‘Farewell Day’ from 0800 UTC on December 19 to 0800 UTC on

December 20, 1998, when radio amateurs are invited to contact PA6PCH using SSB on 3.687 and 144.315MHz.

For the main activity of the day, the Dutch Radiocommunications Agency has given special approval for CW cross-band contacts between the 3.5, 7.0, 14.0, and 18.0MHz amateur bands and PCH's own maritime channels, during the period 1500 UTC on December 19 to 0700 UTC on December 20.

The PCH channels will be manned by past and present PCH operators to give radio amateurs world-wide the opportunity to say farewell to this long established and much respected maritime radio station.

The respective frequencies for cross-band contacts are as follows:

<b>PCH Calls and frequencies</b>	<b>Amateur frequencies</b>
PCH20 (4250kHz)	3525kHz ( $\pm$ QRM)
PCH41 (8622kHz)	7025kHz
PCH51 (12799.5kHz)	14050kHz
PCH61 (17198.9kHz)	18085kHz

The special amateur call PA6PCH will be operated by the Radioclub Kennemerland (PI4RCK), located in the neighbourhood of Scheveningenradio/PCH. Its main purpose is to inform operators, who are not aware of this farewell party, where to listen for PCH. All QSOs with PA6PCH will be confirmed automatically in case the station calling is unable to make contact with PCH itself.

All two-way QSOs with Scheveningenradio/PCH will be confirmed automatically via the bureau. It is emphasised that no QSLs should be sent to PCH in respect of such contacts.

Shortwave-listeners (SWLs) wishing

to receive a QSL card should send their reports to: Ko Lagerberg PA0JY, Lange-maad 2, NL-1991 EG Velsterbroek, The Netherlands; or via the QSL-bureau.

*(We realise this report is likely to be read by MM readers after the event. Unfortunately the information came from PCH too late for inclusion in MM60, but we are including it in this issue as a record of a unique occasion. – Ed.)*

### **HST Championships Budget Cut**

At the meeting of the IARU Region 1 Executive Committee in Dakar, Senegal, on 17–21 April 1998, a report was received on the work of the High Speed Telegraphy Working Group (WG) which organises the IARU World HST Championships.

It was agreed that the IARU financial contribution to the HST Championships be reduced from CHF 4500 to 1500 per Championship, starting in 1999. This sum was to be used for trophies and medals.

The Executive Committee thanked the HST Coordinator, László Weisz HA3NU, for his report and the work of the WG, which it was hoped would encourage more participants.

As reported in MM58 (p.5), and MM59 (p.5), the next HST World Championships will be held in Pordenone, Italy, from 28 April to 2 May 1999, hosted by Italy's national radio society, Associazione Radioamatori Italiani (ARI).

*(From IARU Region 1 News)*

### **Greek Telegraphy Club Formed**

A new CW club, Ellhnikh Lesxh Thlegrafias (The Greek Telegraphy Club), was established on 11 October 1998.

A message on packet radio addressed to all CW clubs world-wide reads: "The club is devoted entirely to CW ham operators, and accepts regularly licensed OM and SWL, Greeks and foreigners, who are interested in keeping the mode of CW, alive and well in the present and the future.

"The purpose of the club is ... to promote the use of CW, through the amateur radio environment world-wide, and to attend, where and when necessary, in order to supply the largest support for the defence and maintenance of CW (operation).

"The members of the Greek Telegraphy Club are already fifty (50) people, and ... there is a very fast growth rate of the organization. We hope that soon many others will come to join us, from Greece and elsewhere.

Best regards & 73

de Yorgos, SV1NA (on behalf of the founding committee)

Athens, Greece Oct/15/1998"

#### **Marconi Celebration Station**

The Marconi Amateur Wireless Society of Sydney, Nova Scotia, will operate all HF bands during the month of December with the special callsign VA1S to celebrate the 96th anniversary of the first West to East Trans-Atlantic radio communication from Glace Bay, NS to Poldhu Cornwall, UK.

#### **'The Mill' – Further Modifications**

Jim Farrior, W4FOK, has added more valuable features to his excellent program, 'The Mill', which teaches both International (CW) and American Morse as well as providing a variety of other

features of interest to Morse enthusiasts at all experience levels.

Jim reports: "Using the standard random generator, words (or characters) are randomly selected from the same list each time. I have designed a new random number generator that selects a word (or character) from the list, sends it, and then removes it from the list. The next one is randomly selected from the unselected ones, and so on, until all in the list have been sent. An indication appears on the screen that 'cycle 1' has been completed, and the random process is then repeated for cycle 2, etc. It is like a raffle for multiple prizes, where the winning tickets do not participate in subsequent drawings.

"The new random generator is especially good when the word list is rather long. Because of the lack of repeats, the user will get many more of the words. Consider how many words must be sent from a 100 word list (say the 100 most common words) by a standard random generator before there is a 95% probability that all words have been sent at least once. Although the user may not be aware that this is happening, the quality of his practice sessions is considerably improved.

"Another feature is that, in addition to normal Farnsworth sending, the user can select a form of Farnsworth which I call 'Word Farnsworth'. As you know, normal Farnsworth sends the characters at a selected speed, and then inserts spaces between the characters and words to slow the speed down to a desired lower overall speed. Word Farnsworth sends the entire word at a selected speed, and then inserts spaces between the words to

give the desired lower overall speed. This feature is especially good for experienced operators who wish to increase their word recognition at high speeds. It gives a little time for the sound of the word to sink in before the next word comes.

“Still another feature allows the user to select a method of sending that sends each word twice. The new random generator will always be in effect, but the user can select any or all of the other features described above.”

This latest version, MILL98D, also supports Scandinavian and German characters. It can be downloaded from Jim's web site, <http://www.net-magic.net/users/w4fok/> as freeware by any user who 'registers' by e-mail. Full details of other features can be found on the website, or see MM51, p.7. Users of earlier versions are recommended to upgrade to MILL98D.

Users are encouraged to 'help keep telegraphy alive' by distributing copies of the program to others. To make this easy, the program contains e-mail instructions and a feature for cloning installation disks. Jim will be delighted to receive feedback from users after they have tried the program.

**STOP PRESS**  
**RSGB Chief Morse Examiner**  
**and Deputy Resign**

As MM61 went to press, it was learned that Roy Clayton, G4SSH, and Geoff Pritchard, G4ZGP, have resigned from their respective posts of RSGB Chief Morse Examiner and Deputy Chief Morse Examiner, effective 31 December 1998.



**THE MORSE ENTHUSIASTS GROUP SCOTLAND**

MEGS was formed in 1991 to encourage the use of Morse, especially by newcomers. Regular skeds are held using our callsign 'GMØRSE' each Monday and Thursday from 7 until 9 p.m. (local time) around 3.530MHz. Among other services, we offer Morse practice tapes free of charge, other than postage. This offer is now also available to *MM* readers. Membership is open worldwide, the 'Scotland' in our title simply shows place of origin. Lifetime membership £1.00. Details from Secretary: G.M. Allan GM4HYF, 22 Tynwald Avenue, Rutherglen, Glasgow G73 4RN, Scotland.



**FISTS CW Club – The International Morse Preservation Society**

FISTS exists to promote amateur CW activity. It welcomes members with all levels of Morse proficiency, and especially newcomers to the key.

The club has awards, nets (including a beginners' net), dial-a-sked for beginners, straight key activities, QSL bureau, newsletter, and discounts from traders.

Further information can be obtained from Geo. Longden G3ZQS, 119 Cemetery Road, Darwen, Lancs BB3 2LZ. Send an s.a.e. or two IRCs.

**I**N MM37, p.16, information was included about a Z1/ZAA 0274 KEY W/T (AUST) No. 1 Mk.II, which Colin Mackinnon, VK2DYM, suggested could possibly be a predecessor of the Key WT 8 Amp.

The information provided was as follows:

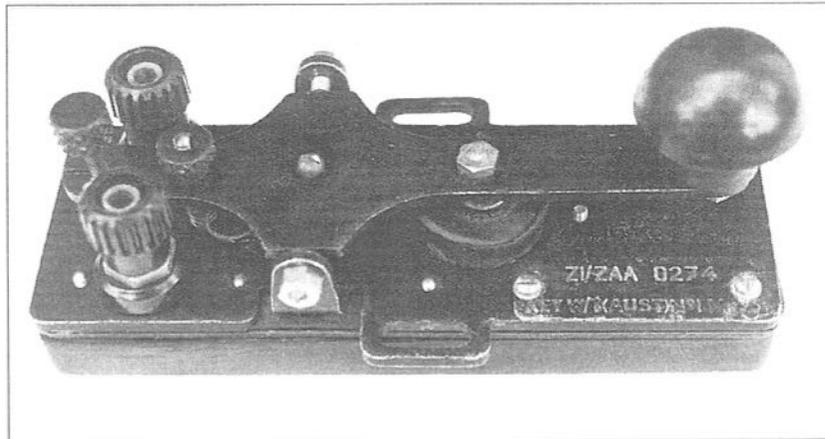
“The small aluminium nameplate stamped with the above information covers an earlier designation stamped on the metal base, namely, Z1/ZAA 7990 KEY W/T No. 1. The original No. 1 key has, presumably, been modified in some way to become a Mk.II and the nameplate used to replace the original designation.

“Colin feels that the knurled terminal knobs cannot be original, or part of the Mk.II modifications, but cannot confirm this in the absence of more definite

## Key, W.T., waterproof, (Aust.), No. 1

Information received from  
Tony Bell, VK5UA

information on the original key No. 1. He says the key, with a multi-layer base (rubber at the bottom) and rubber-shrouded contacts, is quite complex. It has nearly 60 separate parts and would have been quite expensive to manufacture.



Photo/Collection: Colin Mackinnon, VK2DYM

Key, W.T., waterproof, (Aust.), No.1 Mk.2

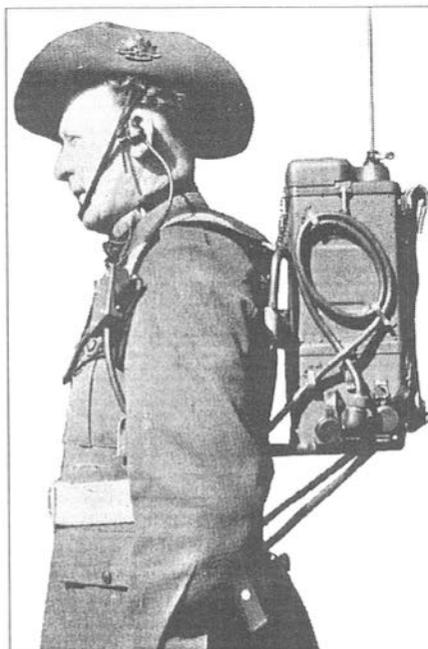
“It would not, however, take 8 amps, probably nearer 1 amp. It is slightly larger than the 8 Amp key, i.e., L128mm x W48mm x H54mm, weight 240g. The key knob is quite familiar and seems to be identical to those used on Keys WT 8 Amp in Australia and elsewhere.

“If any readers can provide further information about this key, its use, or its approximate date, please contact *MM*. It is assumed the slotted extensions on either side of the base indicate that it could be used strapped to an operator’s leg without the need for a Key & Plug Assembly as required for the 8 Amp keys? It is assumed that ZAA means ‘ZA Australia’?, but does anyone recognise the code ‘Z1’, or know its meaning? Finally, does anyone know of a similar key, perhaps ZA 7990 or ZA 0274, used by the British Army?”

#### ***New Information***

Tony Bell, VK5UA, one of the larger collectors in Australia of military radios and associated equipment, has now provided the further information requested on this key. It does not pre-date the Key WT 8 Amp but dates from 1946 when it was brought into use with the new tropicalised Wireless set No. 128 (which replaced the Wireless Set No. 108 Mk.III). The 128, he says, was perhaps the most advanced HF man-pack at that time, as other countries had put emphasis on VHF communications for tactical purposes.

In 1952, the No. 128 was replaced by WS No. 128 Mk.2 which had a variety of minor modifications. Amongst these, the connectors on the junction box normally worn on the webbing braces



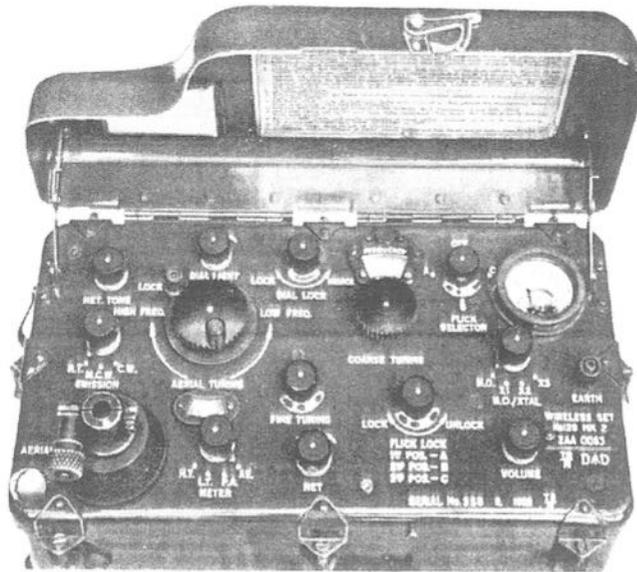
*Wireless Set No. 128. Complete Station*

were replaced by Australian made Mil-Spec style connectors.

Key Z1/ZAA.7990 was used with the original 128; and Key, W.T., waterproof, (Aust.), No. 1 Mk.2 (to give its full designation), stock number Z1/ZAA.0274 was used with the No. 128 Mk.2. Tony’s guess is that the only difference was the change of connector at the end of the cable, hence the ‘overlay’ change in title and number on Colin Mackinnon’s key. This appears to be confirmed by the fact that the headset and throat microphone for the No. 128 Mk.2 were given new stock numbers although they are the same items except for the connector.

#### ***Tropic-Proofing***

Around 1943, Australia embarked on an equipment replacement programme



Front panel of Wireless Set No. 128, Mark 2

confirms that the second A in ZAA does represent Australia, as also in ABA, YCA, etc. He says: "I believe the Australian policy

after experiencing severe problems with humidity in various theatres of war, particularly in New Guinea. Great emphasis was placed on true tropic-proofing, i.e., sealing the equipment, and some of the techniques used were quite elaborate.

This explains the complex design of the key mentioned by Colin Mackinnon. Regarding the terminals, Tony has two of these keys and both have the same type as shown in Colin's illustration, so these are presumably original. The article in MM37 describes the Z1/ZAA.0274 as a 'Mk.II'. This was an *MM* typing error, and should read 'Mk.2'. Tony points out that the Australians followed British practice and used Arabic rather than Roman numerals to indicate the mark from about 1945.

#### **Australian Stock Numbers**

Regarding the stock numbers, Tony

was that if an item was identical to the British counterpart, i.e., no more difference than that of two different British manufacturers, it would carry the British stock number, otherwise a new stock number would be allocated. There is NO relationship between the digits of British and Australian allocated stock numbers.

"Regarding the letters, I believe the following is a broad guide:

- ZA is wireless equipment
- ZB is ancillary wireless equipment
- ZC is miscellaneous wireless, e.g., test equipment
- ZD is ?
- YA is telegraph/telephone equipment

"However, the use of Z1/ZA or Z1/ZAA is curious. I seem to recall seeing Z2/ZB, Z3/ZC, and Z4/ZDA, and would appreciate any information readers could provide on pre-NATO stock numbering systems." *MM*

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**T**HE TITLE OF THIS ARTICLE may seem a contradiction in terms, but combined telephone/telegraph sets have a long history in military communications. Simple military telegraph circuits using sounders or Morse inkers for reception were in common use at the time Alexander Bell developed his first telephone in 1876. However, Morse could not be received as a note or a tone prior to the advent of the telephone earpiece, as there was no device which would respond to a frequency of several hundred hertz.

With the availability of the earpiece in the 1880s, attempts were made to use it to receive Morse telegraph signals as an alternative to the electromagnetic sounder (Fig. 1). Initially, the earpiece simply produced a click at the start and end of each Morse dot or dash. It proved to be exceedingly sensitive to minute

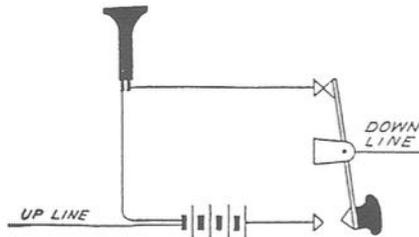


Fig. 1 - DC Morse circuit with Bell earpiece as an alternative to the conventional sounder

\* Hon. Curator, Porthcurno Museum of Submarine Telegraphy

## Morse Telephones

by John Packer\*

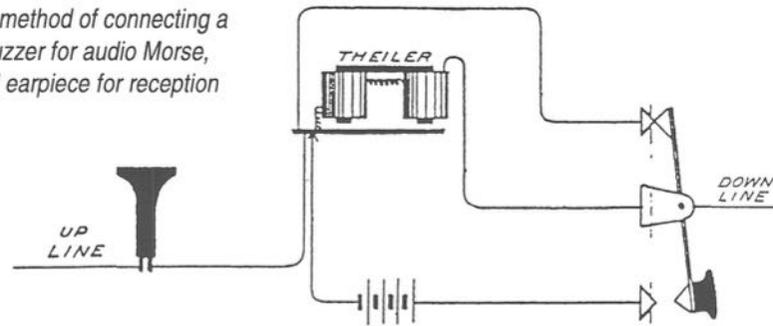
signals, almost too sensitive, and when other lines ran parallel it responded readily to crosstalk as well as to intended signals.

Its use was soon abandoned by commercial telegraphers. They preferred the solid loud clacking of the brass and mahogany sounder which could be read comfortably from anywhere within yards of the instrument, and did not require the operator to hold a device to the ear.

### The 'Vibrating' Telegraph

Captain Cardew of the Royal Engineers had other ideas. He was particularly impressed by the sensitivity of the earpiece. The very quality that had proved an embarrassment to the commercial telegrapher might be of service to his military counterpart, struggling with badly insulated and hastily constructed lines.

Fig. 2 - One method of connecting a 'Theiler' buzzer for audio Morse, using a Bell earpiece for reception



The Bell earpiece was relatively robust. There were no adjustments required and it would respond to very weak signals, so the sending station needed very modest battery power. Its one disadvantage for military purposes was that, unlike the Morse embosser or inker, it didn't provide a permanent record of incoming messages.

Cardew's experiments are recorded in a paper read to the Institute of Telegraph Engineers (now the IEE) in May 1886. In about 1880 the Chatham School of Military Engineering had obtained a couple of Bell telephone earpieces. Experiments in receiving DC Morse were not very successful as "it was found there was difficulty in reading due to the almost perfect similarity of the make and break clicks in the telephone and... the liability to read the signals reversed."

Despite this, in 1881 experiments were made to see how far the signals could be received using a bare uninsulated wire. Fifteen miles were laid along the Chatham – Dover railway, directly on the ground or along hedges, to see if forward area communications could be reliably carried out over such hastily improvised lines.

With the Bell instrument as a sounder,

signals were read with difficulty through a background of interference – the latter being partly crosstalk from other telegraph circuits and partly line noise due to poor joints, stray earth currents, etc.

Cardew then tried using a 'Theiler sounder' connected as a buzzer so that an audio tone was sent to line (**Fig. 2**) "... this was completely successful, the note being easily read and quite distinct from induction (i.e., crosstalk) and noises due to earth currents." He then cites the need for a simple apparatus for holding the telephone in the required position, to leave the arm free... "two telephones, one to each ear might be advantageously employed." Headphones as such were obviously still in the future.

#### Further Trials

Messrs Theiler were London instrument makers who made all kinds of telegraphic apparatus. I have no details of the 'Theiler sounder', employed by Cardew but from other contemporary apparatus that I have seen, I imagine it was only capable of relatively low frequency vibration, say 150 to 250Hz.

This would give a slight propagation advantage (although line loss increases with frequency, skin effect is of no con-

sequence at 250Hz); and a physiological disadvantage, as the average human ear is perhaps 20dB more sensitive to audio at 800–1000Hz than at the lower frequency that must have been employed.

The success of Cardew's experiment prompted further trials at Aldershot. The system was then tried during the Egyptian Expedition of 1882 with some success (even over an uninsulated wire, a portion of which was buried in the ground for 200 yards!), and a purpose-built vibrator with a thin ferro-type armature was designed which produced a higher frequency note.

This was tried on the Indian landline system and worked successfully over a distance of 375 miles, a surprising figure considering the simplicity of the system and the relatively insensitive earpiece available compared to its modern counterpart. The line was almost certainly of overhead open wire type on ceramic or glass insulators, with the dry climate of India providing superb insulation. A signalling emf of about 40 volts was tried initially, and on reducing this to about 6 volts, signals were weak but still readable.

### Line Disconnection

At one stage in the experiment the line was disconnected at a point 125 miles along the route and the two ends of the wire were thrown down on a damp floor. Signals were still received at the distant end using only 6 volts. All these experiments used a single wire and earth return, which was the normal method for telegraphic communication at the time. Both of the above factors (signalling through a break, and the earth return) were to have repercussions in the Great War.

In 1883, the vibrating telegraph was tried on a plethora of overhead and underground lines made available to the Royal Engineers by the Post Office. Some of the experiments seem faintly amusing, for the report states that human bodies, and even the proverbial piece of wet string, gave good signals with only six cells (about 9 volts).

However, one has to remember that the intention was to provide reliable communications over high resistance, badly insulated and even broken lines; and that, although a battery of only a few volts was used, the self-induction of the

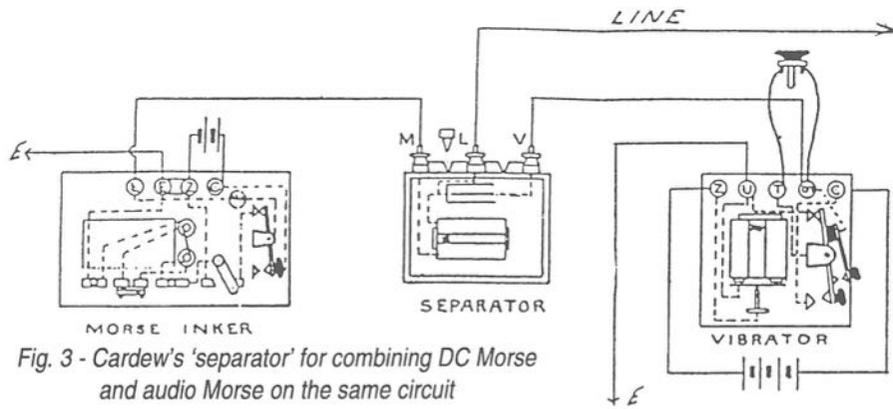


Fig. 3 - Cardew's 'separator' for combining DC Morse and audio Morse on the same circuit

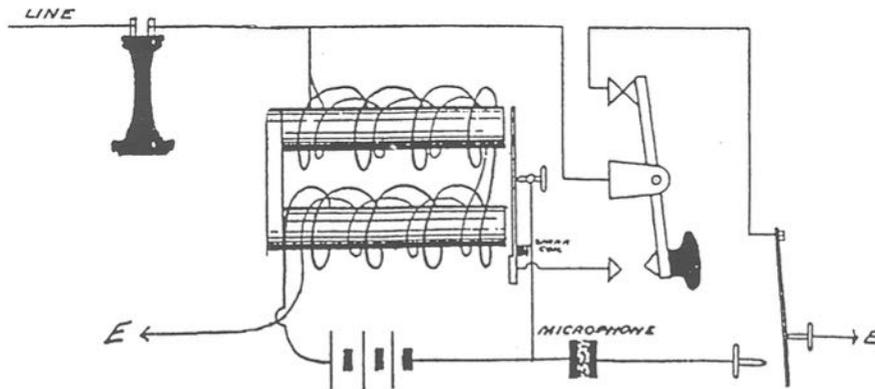


Fig. 4 - Cardew's 'combination box' combined telephone and audio telegraph set

buzzer coils provided a spiky waveform with the collapse of flux at each 'break', with a peak voltage to line of many times that of the local battery.

One significant finding of these early experiments was that although the vibrating telegraph could cover 300 miles on an overhead open-wire line, the high capacitance of underground cables reduced this distance by a factor of about ten.

#### **Superposed Working**

Cardew then went on to see if the vibrating system could be 'superposed' or worked simultaneously over the same wire as a conventional DC Morse circuit. This proved feasible if the vibrator was connected to the shared line via a capacitor of about 0.1 microfarad to block the DC Morse signals, and the Morse equipment was fed to line via a choke (Fig. 3).

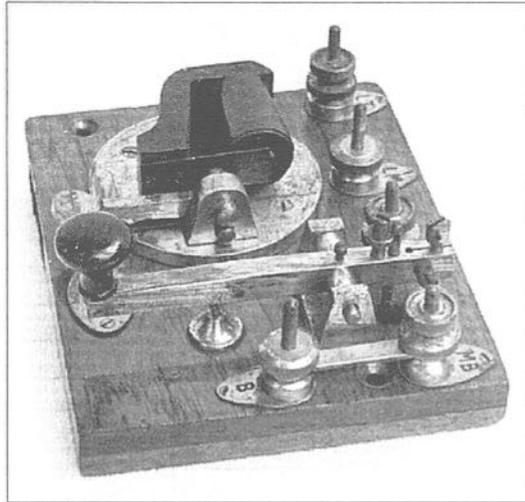
The latter rounded off the near squarewave Morse signals, removing high-frequency transients which would otherwise cause annoying clicks in the earphones of the vibrator circuit. Cardew

then made some prototype 'separators', small wooden boxes with a choke and a capacitor connected to suitably labelled terminals to which Morse, vibrator and line were to be connected, allowing one wire to carry two independent circuits.

Finally, he designed a 'combination box' in which a telephone handset with carbon microphone added voice facilities to the vibrating telegraph (Fig. 4). The problem of switching the battery on for talking and off for reception was solved by Quartermaster Sgt. Kenny, RE, who devised the prototype of the ubiquitous 'pressel' switch in the handle of the handset. The results of all these trials and prototypes were embodied in the design of subsequent service issue instruments, and were given field trials 'in earnest' in the Great War 1914-1918.

#### **From Prototype to Standard Equipment**

Around the turn of the century, two independent lines of development took place. The first was a series of vibrating telegraphs developed primarily for use by the field Artillery - the Transmitter



*Transmitter, Vibrating, 1917*

*Photo: Dennis Goacher G3LLZ*

D, Mark I. The buzzer was actuated by a simple push-button to provide an audio call signal, thus dispensing with the heavy and expensive magneto and polarised bell and reducing the weight of the instrument to less than 6lb.

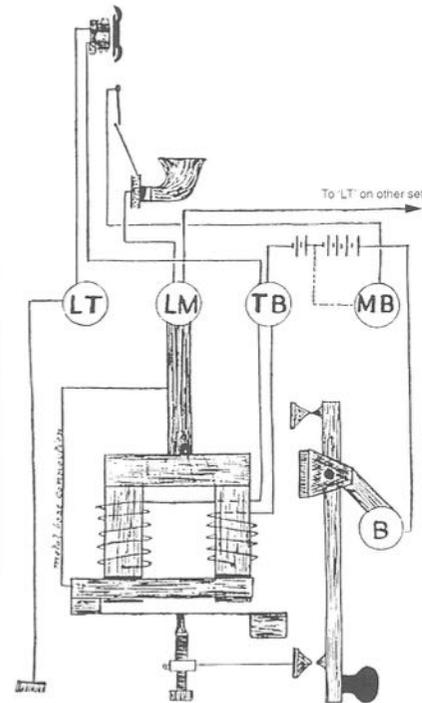
The Artillery transmitter was primarily a telegraph instrument with telephony as an afterthought. The limited range of this latter mode was because there was no transformer to match the low-impedance carbon microphone circuit to a high-impedance line.

In contrast, the Telephone D Mark I

Vibrating, Mark IV being a typical version; and quite separately a number of early office and so-called portable field-telephones were also designed.

These portable units, service types A, B, and C were in use by 1908, all with magneto and polarised bell for calling purposes, and using Ericsson designed handsets. Their portability was perhaps a matter of opinion, the type A set, for example, was in a box over 15 inches long and weighed 40lb!

The technological convergence foreshadowed by Cardew's 'combination box' then took place. A telephone handset was fitted as standard to Artillery vibrating transmitters to provide alternative voice facilities over short low-loss lines (**Fig. 5**); and a vibrating buzzer was fitted to the next version of the field-telephone, the Telephone Portable Type



*Fig. 5 - Artillery 'vibrator' telegraph set, with telephony added as an afterthought (no microphone transformer)*

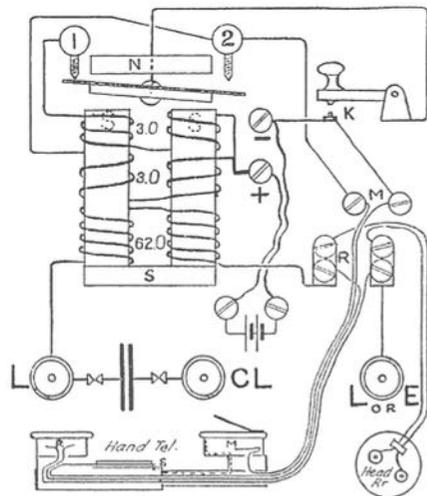


Fig. 6 - Telephone D Mark III\*.  
True telephony and Morse telegraphy with  
a combined buzzer/microphone transformer

was a 'real' telephone with a microphone transformer. The separate buzzer gave the calling signal but as there was no Morse key it was not intended for telegraphy. By 1908 a more robust version with the same facilities became available as the Tele-D Mark II.

The use of a buzzer for calling as an alternative to a magneto and bell cannot be attributed entirely to Cardew, for the weekly magazine *English Mechanic* for 29 April 1881 describes an amateur experimenters' version of the same device; but Cardew must be given credit for exploiting the use of buzzers for Morse telegraphy over very poor lines.

### Final Convergence

The final stage of convergence, and it is a wonder it took so long to arrive, was embodied in the Tele-D Mark III

*Telephone Set D Mark III\*, dated 1917.*

*Shown without handset*

*Photo: Dennis Goacher G3LLZ*

(Fig. 6). In this set, which became the workhorse of forward area line communications in WWI, the coils of the buzzer also acted as a microphone transformer, and a proper Morse key was fitted.

The buzzer itself had a polarised rocking-armature with two contacts – the design obviously borrowed and adapted from the magneto bells in common use. The handset was an aluminium and brass affair which telescoped to fit into a pocket in a leather carrying case, which also contained the battery and buzzer unit and a second earpiece with a headband, so that for weak signals in noisy conditions both ears could be used.

An internal series capacitor connected to an alternative line terminal labelled 'CL' allowed the set to be connected to



a line carrying DC telegraphy for 'superposed' working. The unit was now a real telegraph and equally a real telephone set.

With good lines, speech was possible over moderate distances (the forward area role of the set meant it was never intended for long-distance work), and when a line was so poor that speech became unreadable, buzzer Morse took over and would even work through a line break by leakage or capacitive coupling as long as the two ends were not too far apart – a real boon in shell-blasted areas.

The set was designed for single wire and earth return working. The earth terminal was connected to the metal base of the set, which was normally carried in a leather case. For rapid tactical communications the set could be carried by a signaller who unrolled a thin enamelled copper wire as he advanced.

When he wished to communicate he placed the set (out of its leather case) directly on the ground so that its metal base provided an immediate earth connection without having to waste time driving in an earth spike. The copper wire was expendable. Its enamel coat provided adequate short term insulation, and even when this was faulty or the wire was broken by a shell the Morse buzzer might still get through.

#### ***Stevens Telephone***

A number of commercial manufacturers produced combined telephone/telegraph sets, partly as an aid to ordinary civilian linesmen, and partly with a view to supplying the military.

One instrument purchased by the

Army (whether as a short-term expedient to meet manufacturing shortfalls of the Tele-D or as an equally reliable and perhaps cheaper alternative is not clear), was the Stevens Phone made by the International Electrical Company Ltd.

The maker's leaflet called the set 'patent' although it is difficult to see on what grounds a patent would have been issued as the circuit is almost identical with that of the Tele-D Mark III. The only difference is a switch for bringing in extra cells for use with deteriorating batteries, and the absence of a series capacitor facility.

#### ***Security Problem***

Sadly, the penetrating power of the Vibrating Telegraph, seen as its greatest asset, was now to prove its undoing. In static trench warfare, with opposing sides often only hundreds of yards apart, the earth return buzzer signals, and even speech, was easily intercepted by the German Army which employed valve amplifiers connected to earth spikes to pick up stray earth return signals. The method was even developed for 'ground conduction wireless', using power buzzers as transmitters and amplifiers as receivers, all at audio frequencies. (*See 'Earth Current Telegraphy', by Louis Meulstee, MM9, p.1. – Ed.*)

The loss of security was addressed on three fronts. Powerful and continuously running buzzers were used to feed 'jamming' noise into the ground. These were placed so that they caused only nuisance noise on Allied earth-return circuits, but masked the small levels of leakage into enemy lines.

A better answer was the Fullerphone

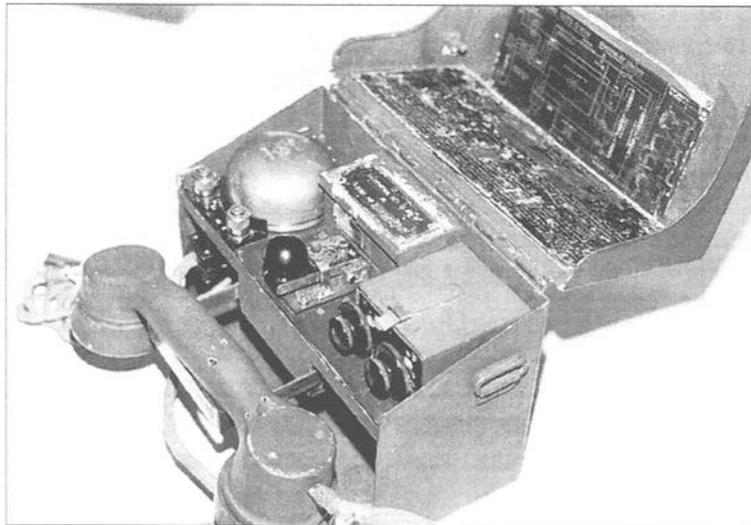


Photo: Henri Jacob F6GTC

*Telephone Set D Mark V (commonly known as the 'Don 5'. – Ed.).  
Morse facility little used. See text*

developed by Captain A.C. Fuller, RE. This fed DC Morse signals to line at very low levels (microamps) which were almost impossible to pick up using any apparatus not directly connected to the line; and the DC was converted to an audio frequency at the receiving end by a buzzer-operated 'chopper' or make and break contact. Fullerphones were also fitted with handsets and could be used as normal telephones (*i.e.*, until the *Mk IV* version of 1939. – Ed.), but with loss of security. (See 'The Fullerphone', by Louis Meulstee, *MM5*, page 29; and 'Major Fuller & the Fullerphone', by Tony Smith, *MM60*, page 26 – Ed.)

A third method of addressing the security problem was to abandon single wire and earth return working in favour of twin-wire working. This had already been adopted as standard by the commercial telephone companies whose

earth return circuits had been plagued by hum pick-up with the advent of alternating mains power supplies.

With twin wires there were no earth return signals to intercept, and with suitably balanced twisted-pair cable, no magnetic fields either. The earthed base plate of the Tele-D Mark III now became a liability as it could provide an unintentional earth. All future supplies of the set, therefore, had the internal connection removed and a white square painted on the case to show that the set was 'safe' to use on twin cable.

#### **Final Demise**

By the outbreak of WWII, the Telephone D had undergone a number of technical improvements resulting in the Tele-D Mark V which bore little resemblance to the Mark III but embodied essentially the same design principles.

The Mark V was larger and heavier, in a steel case which contained the handset and a separate earpiece. A high-resistance polarised bell was fitted so that the unit could be called by magneto from an exchange. With the exception of this bell, and a resistor-capacitor balancing network for anti-sidetone operation, the unit was electrically similar to the Great War version.

The components, however, were of an improved type. The buzzer-cum-microphone transformer (Buzzer-T Mk I) had a centre-tapped secondary as part of the anti-sidetone bridge, high permeability iron pole-pieces and armature, and powerful cobalt-steel polarising magnets. The buzzer could be withdrawn and replaced without the need for soldering iron or screwdriver.

Although clearly intended for Morse telegraphy as well as telephony, it seems in retrospect that this was a hangover in thinking from the Great War. I have quizzed a number of war veterans who used the instrument and none of them recall the key and buzzer function being used for anything but simple calling

purposes. A Morse telegraph facility had been retained, but it was fast becoming obsolete. (*This is confirmed in general by correspondence in past issues of MM, where readers recalled the D Mk V only being used for Morse teaching or Morse practice. See 'Morse on the Don 5', MM33, p.44 and MM34, p.46. – Ed.*)

The design of the next WWII field telephone, the Tele-F, acknowledged this. Although fitted with the same Buzzer-T, the Morse key was replaced by a simple press button for audible calling purposes, and in addition, a magneto was provided as an alternative calling mechanism.

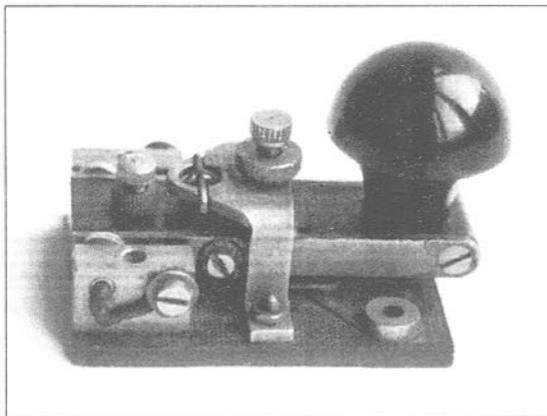
The combined telephone/telegraph set or 'Morse-telephone' had evolved into a speech-only instrument. Captain Cardew's 'combination-box' had lasted in one form or another for sixty years, but its demise had arrived.

#### **Technical Appraisal**

As several 1914–18 (Tele-D Mk III) and 1939–45 (Tele-D Mk V) instruments were available, a simple technical comparison was made with a view to determining:

- (a) how effective the vibrating telegraph actually was on poor lines and
- (b) what improvements had been effected in the inter-war years.

In the summary table on the next page, with known buzzer



*Morse key YA 1860 as installed in Telephone Sets D Mark V*

*Photo: Stan Williams G3LQI*

	Mk III	Mk V
Buzzer output into 600Ω load	+20dBm	+25dBm
Buzzer peak-to-peak max waveform spike	250V	350V
Highest reliable buzzer frequency	700Hz	700Hz
Lowest detectable Morse signal at 700Hz	-50dBm	-70dBm
Lowest detectable Morse signal at 1400Hz	-60dBm	-70dBm
Speech output (approx) into 600Ω load	-26dBm	-15dBm
Speech output Mk III with Mk V handset	-18dBm	
Extrapolated max line loss on 700Hz Morse	70dB	95dB

outputs, the maximum line losses through which Morse could be worked have been deduced.

The Tele-D Mk V would theoretically work through a loss of 95dB in a quiet environment. Decibels obscure the magnitude of the figures; with an output of less than 400 milliwatts (+26dBm), buzzer signals could theoretically be read through a loss of nearly four thousand million times (96dB).

In reality, line noise and ambient noise at the receiving end would reduce this to a line loss of say 73dB. This still

represents a signal twenty million times weaker than the original buzz!

No wonder buzzer Morse could get through on lines so bad that speech was inaudible. No wonder, too, that it led to serious security leaks in the Great War!

*(Condensed from Porthcurno Occasional Paper No.10 (which has nine A4 pages of text, plus ten illustrations), published by the Museum of Submarine Telegraphy, Porthcurno, Cornwall. Figure 6, and all the photographs used with this condensation are not part of the original paper.)*

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**I**T WOULD BE UNTHINKABLE to let this last edition of *MM* under the editorship of Geoff and Tony pass without acknowledging the tremendous success that they have achieved in flying the flag for the skilful art of Morse telegraphy. The magazine has indeed proved itself to be an invaluable work of reference providing international coverage of all aspects of Morse Telegraphy, past present and future.

Back in 1990, on my appointment as Chief Morse Examiner, I was invited by Geoff and Tony to write a comment on my views regarding the future of Morse. This was published in MM19, where I wrote:

“Morse in the professional services is declining as more cost-effective, speedier and less-manpower intensive modes of reliable communication become available. In the long term it may well be that Morse will become almost exclusive to amateur radio, with national societies and enthusiast magazines, such as *MM*, becoming the sole remaining specialists on the subject.

“Fortunately, in the field of amateur radio the above professional considerations are more than outweighed by the tremendous advantages that the use of Morse can give, such as the efficient use of radio spectrum, the ability to use simple low-cost transmitters and

## The End of an Era

by Roy Clayton G4SSH



RSGB Chief Morse Examiner

receivers, its international language capability, and its superiority over other modes in its ability to contact distant stations over weak and fading signal paths.

“To employ these advantages, however, requires a certain amount of self-training and dedication in order to acquire these unique skills. Regrettably, there are many people today who would rather spend their time and effort in trying to change the rules.”

Nine years later, these words could have been written yesterday, but with one crucial difference. It was never anticipated that by the turn of the century

National Societies world-wide would be scrambling to renege on their responsibility to support the Morse test. Financial considerations have been weighed against standards and now National Societies, one after another, are falling over themselves in an undignified rush to 'dumb-down' entry qualifications in a cynical attempt to recruit new members and so, wishfully, halt their decline in membership.

Some of the statements used to attempt to justify the removal of the Morse test are quite breathtaking in their arrogance. "It is stopping growth in the hobby" and "It is necessary to secure the future of amateur radio" should send a shiver of apprehension down the spine of every radio amateur, because exactly the same reasons can (and will) be applied to 'modernise' the Radio Amateur's Technical Examination. The editor of *Ham Radio Today* magazine (now owned by the RSGB) is already advocating that "the Novice Radio Amateur Examination is a perfectly acceptable standard for a full licence" and "let's make it easier for everyone to qualify as radio amateurs – wouldn't it be great to welcome thousands more people – young and old into our fold."

Negotiations and decisions are being taken by people who neither know, nor care, anything about Morse. *73 Amateur Radio* magazine in the USA has already started a campaign to reduce the CW allocations in the HF bands, using the argument that because SSB is less spectrum efficient than Morse they are entitled to have more space!

I am proud of my Class A prefix. It declares to the world that I am a

competent person to be representing the United Kingdom on the International Amateur Radio Bands. It indicates to all that I have studied for and reached an acceptable level of achievement considered necessary by the licensing authorities. I have undergone self-training in the universal language of Morse code which allows me the priceless privilege of carrying out a conversation with fellow amateurs across the world regardless of language barriers. I knew the requirements before I became a radio amateur and I did not seek to change the licence rules in order to make it easier to obtain these privileges.

So as we approach a new Millennium the question of Morse is still the most controversial subject in the amateur radio world. *Morsum Magnificat* is needed as never before to put the CW enthusiast's point of view. The so-called 'Great Morse Debate' in the UK turned out to be the great propaganda exercise to remove the Morse test, with opposing views being treated with scorn and derision. People who support the removal of Morse are "Courageous, brave and forward-looking" whereas, in the words of the president of one national society, people with opposing views are "looking backwards." And I always assumed that democracy was as much about disagreeing as agreeing!

Geoff and Tony, congratulations on a job well done. Now it's over to you Zyg, with a hard act to follow. One consolation however is that you have the support and well-wishes of what is probably the most experienced and dedicated bunch of Morse enthusiasts in the UK, and far beyond. *MM*

**I** WAS AMONG THE LAST of them. By the time I hired out as a telegrapher, in June of 1949, telegraphy was well on the decline. However, a new demand for telegraphers developed as a result of the introduction of the forty-hour week. Up to that time, the railroads had not yet invested in the network of telephones and other equipment which would completely replace the telegraph, thus it was to continue in use for some years to come.

In January of 1949, having worked for the Atlantic Coast Line Railroad for a year as an agency clerk, I travelled by train to Huntington, West Virginia, where I attended the Huntington East High School of Telegraphy. This school had been founded for the training of telegraphers to meet the needs of the forty-hour week. Instructors came from both the Western Union and the Chesapeake and Ohio Railway.

I have always believed that the training I received there was of great benefit. One night, near the end of my schooling, Instructor H.E. McComas said to the class, "If any of you can copy what I am going to transmit, you will be advanced enough to hire out. Do not break, but copy as best you can."

#### ***Ready for the Extra Board***

When he finished transmitting a rather difficult newspaper article, full of long words and punctuation, he asked "Were any of you able to copy it all?"

## **Among the Last of Them**

*by L.A. Bailey*

Sheepishly, three of us out of some twenty-five or thirty raised our hands. He had each of us read the article back to him. I had copied it correctly, but confess it was written in very poor form.

"You three", said McComas, "are ready for the extra board. Get hired out and your seniority started." I did not realise the importance of seniority at the time, but I brought my stay at Huntington to an end, contacted Chief Dispatcher H.M. Cheely of the Ocala District for an interview, and returned to Florida.

Arriving at my home town of Gainesville (call GV) by train, I was met by Operator Walter Barfield who served as first trick ticket seller. Walter was a fine person, very brilliant, but a little cynical. "Let's see if that school was worth the trip," he sneered, "'SW' (Ocala Relay) is calling. Let's see what you can do!"

*continued on page 28*

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## GLOSSARY

**Extra board:** Man not on an assigned position, but available to call as and when needed.

**Seniority:** Begins on date first worked for pay.

**Trick:** Shift, usually eight hours.

**Prince Albert:** Trade name of canned smoking tobacco manufactured by R.J. Reynolds Co. Their 1½oz metal cans, when emptied, could be wedged between the sound-bar adjustment screw and the back of the resonator to amplify the sound and soften the tone, making it less tiring to the ear. Old-time telegraphers believed the Prince Albert can superior to other tobacco cans for this purpose. However, other types were used. The late F.W. Thomas, mentioned in this article, used a 'Half & Half' brand can which he claimed was better than a Prince Albert.

**Agent:** Responsible for soliciting and protecting shipments, maintaining relations with city and county officials, keeping station accounts and records, collecting freight and passenger revenues, and supervising station staff. He might also act as agent for the Railway Express Agency. His position could also be combined with other duties, for example, Agent-Telegrapher, Agent-Yardmaster, Agent-Telegrapher-Leverman, or in the case of larger agencies, Supervisory-Agent. If the railroad company had contracts with the US Postal Service or Western Union Telegraph Co., he also represented those companies locally.

**Center-pass track:** A passing track located between two main lines.

**Storage track:** A track used for storing equipment until needed.

**Wye:** Tracks forming a triangle, used by an engine or train to reverse their direction.

**House track:** A track serving a depot freight-house for the loading or unloading of freight.

**On the fly:** Handing up train orders and/or messages on a hoop to train or engine crews without having to stop the train. (In the case of a Form 31 order, the operator had to stop the train to deliver the order, obtaining signatures of Conductor and Engineer).

**Order hoop:** A long-handled hoop on which train orders and/or messages were attached and handed up to a moving train.

**Express commissions:** Commissions paid to an agent for the handling of express shipments, both inbound and outbound. The amount was usually ten percent of the tariff charge.

**Rock extra:** An extra train without schedule, authorized by train order to work lime-rock mines, switching out loads and placing empties for loading.

**Dispatcher:** Issues orders for the movement of trains over a defined territory, ensuring that necessary work is performed. If territory is under Central Traffic control, he mans the panel boards, handling switches and signals.

**Gravity battery:** Local battery used on the railroad telegraphs. This was a glass jar with copper plate (positive pole) and zinc 'crowfoot' (negative pole) immersed in water mixed with blue vitriol. At intervals, the copper plate and zinc 'crowfoot' were replaced, old vitriol was dumped and a new supply added to the water. While main telegraph circuits were once supplied with gravity batteries, Western Union in later years used generators. Secondary circuits (local circuits controlled by main line relays) used gravity batteries until about the mid-1950s.

*(For detailed explanations about many aspects of the work of the American railroad telegrapher, see the Railroad Telegrapher's Handbook, by Tom French, which will once again be available from the MM Bookshelf early in 1999.)*

### ***Beginner on the Wire***

I sat down at the telegraph table, opened the key, and answered "I, GV." (*I = acknowledge. – Ed.*). It did not take long for the telegrapher at Ocala to realise that he had a real beginner on the wire; and nothing sounded to me as it had in the telegraph school at Huntington.

They had not allowed us to use a Prince Albert tobacco can or any other device to tone sounders, and Walter had a strange looking piece of tin mounted atop his sounder that rose upward three or four inches, then twisted into a semi-circle. It was laughable to look at, but I would learn in time that his toning device was one of the best that I would ever hear.

I cleared 'SW' but it was not without difficulty and embarrassment. To make matters worse, G.H. Turner, the station agent, as well as a couple of the clerks I had worked with, came over to watch me copy. Unknown to any of us on that day was the fact that I would improve in time and that, six years later, I would be assigned to 'SW' and work relay for a number of years.

### ***First Assignment***

My first assignment on the extra board was at Vitis (MA), a country station in Pasco County, about twelve miles from Dade City. Single tracks from Lakeland and Tampa merged at Vitis to form double track running northward to Dunnellon. There was a long center-pass track, a storage track, a wye, and a house track, with all the trackage controlled by an interlocking plant. Again, I was grateful to Instructor McComas at

Huntington as he had taken me on the job with him where he operated an interlocking plant.

There was difference though. At Huntington, the tower and yard were well lighted, but at Vitis I handed up train orders to angry 1600, 1700, and 2000 class steam engines on the fly, holding an order hoop in my right hand and a kerosene lamp in my left. Many were the times I lowered the lamp to my feet to make certain I had not stepped across the notch cut into the boardwalk which marked the point of safety for the operator.

On completion of the extra work at Vitis, I headed for home, stopping at Okahumpka (UK) to relieve agent M.L. Waldrep for two days. Waldrep had developed fern shipping and, to my joy, express commissions ran over twenty dollars a day even after extra help had been paid. A produce broker had his office nearby, and market quotations by Western Union were copied for him daily. I copied those from Jacksonville WU (JN) without difficulty.

### ***No Rest***

Finally reaching home, I wanted to rest for a few days but the telephone rang and Walter Barfield said that the 'chief' wanted me to come to the depot and talk to him. He wanted me to relieve the agent at Brooksville (BR) for his vacation. As the job involved lime-rock shipping, he wanted to know if I thought I could do the billing and take care of other agency work.

Brooksville was located at the end of a branch line, and the only communication was the dispatcher's wire, No. 17,

and a message wire, No. 16. There would be orders and messages to copy for the rock extras. Could I do it? I told him I could!

The only way to get to Brooksville without an automobile was to ride the night local passenger train, No. 37, the Havana Special, to Trilby, and then ride with the contract mail drayman over a rough country road the remainder of the way. Mr Ramsey charged me a dollar for the ride, plus I had to help him load the bags of mail on his truck. He and I became good friends, and were destined to await the arrival of mail trains together at Trilby for some years.

### ***Hardest Job***

I arrived at Brooksville two days early by choice, in order that I might learn everything possible about the job, and stayed in a local rooming and boarding house at my own expense. The agent, W.F. Whittle, was very helpful in showing me what was to be done, but I soon discovered that my hardest job was keeping my eyes away from the pictures of his family on his desk.

One of the pictures was of a girl about my own age and there was something about the shape of her mouth that bothered me. On the last day before leaving, he said to me "I want to ride the Southland from Inverness (about twenty miles away) tomorrow night for a visit to my old home town of Pelham, Georgia. As my wife doesn't drive, and my daughters don't like to drive at night, would you consider driving me?"

I guess he didn't exactly trust me with his car, as his wife and daughters went along too. But yes, the mouth of

that girl was just like it was in the picture, and it was hard for me to keep my eyes on the road. To end that part of the story, she and I were married two years later and, today, some forty-six years later, I still like the shape of that mouth!

### ***Gravity Batteries***

At Brooksville, there were no sounders on the circuits, only relays. After working the job for several days, I found I could not hold adjustment on either of the wires. It was also obvious to me that those with whom I was trying to communicate were not having the same difficulty. Trainmaster A.M. Whigham came by the depot to use the wire to talk to the chief dispatcher, and I explained the trouble to him.

He was dressed in a white shirt and a blue suit. Off came his coat, up went his shirt-sleeves, and he proceeded to introduce me to the gravity battery. We found two of them on a shelf in the warehouse, and he showed me how to rebuild them, using a new supply of bluestone, a zinc 'crowfoot' and a copper plate.

Mr Whigham was considered by railroad employees to be rather hard in his supervision, but I got along with him and never forgot the valuable lesson he gave me that afternoon dressed in his 'Sunday best'.

### ***'Darlingface'***

In 1950 I was assigned third trick at Trilby (XN), a busy train order office. I worked the night shift for five years. One morning, about 4 a.m., Tampa Western Union (TP) began calling. I could read a certain urgency in the calling that only a telegrapher can understand but,

because I was busy with trains, held off for a while before clearing.

When I finally did answer, I was surprised to find that the telegram was addressed to Miss June Allyson, Care Of Train No, 33 (Southland), at Trilby. The sender was her husband, Dick Powell. Miss Allyson was *en route* for Tampa for the making of the movie *Strategic Flight Command*.

The telegram was a message of love, and I remember Mr Powell addressed her as his 'Darlingface'. As she detrained at Trilby, and boarded a station-wagon for her destination, I easily agreed with Mr Powell's choice of words.

### *End of an Era*

After five years of night work, I was assigned the position of telegrapher in the Superintendent's Office at Ocala (SW). The first few years were all Morse, but teletypes eventually came. I enjoyed the teletype concepts, but my heart never left telegraphy. New men hired in those years seemed to have little or no interest in telegraphy and that is why I consider myself among the last.

I eventually entered agency work, and strangely enough my first assigned agency was at Okahumpka, the first agency that I had worked on the extra board. The fern era had passed by that time, but citrus and vegetable shipping was still going strong.

In 1966, I became Supervisory Agent at Clearwater (CW) where I had first worked as a clerk in 1948. As jobs

declined, I felt the need for change, and entered the field of banking. Railroad service gave me a background in human relationships and the performance of business that prepared me for my new occupation.

### *Postscript*

Pop Whittle, whose daughter I married, died a few years ago. He had retired, a respected agent, with 53 years service. As a side-note, he, in 1914, married the daughter of the agent at Pelham, Georgia, under whom he worked. Both these men were old-time operators, never using anything but hand keys.

I am still a telegrapher. Until 1989 I shared a private line (see '*Introducing the BATH Telegraph*', MM5, p.24. – Ed.) with my old friend F.W. Thomas, who first suggested in 1948 that I change from a clerk to an operator. Tommy lived in retirement about three miles across town, here in Clearwater. We leased a wire from the General Telephone Company, supplying our own power and instruments. We enjoyed wire and phone conversations almost daily, recalling people and places of other days as well as discussing family and current events.

Nowadays I keep in touch with other friends through the Morse Telegraph Club 'Dial Up' system and by tape exchanges. I was among the last of them and an exciting time it was for which there are no regrets. Telegraphy gave me much that I could have gained in no other way! MM

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**O**NE OF THE FINEST telegraphists I ever knew was Reg Gregory, my Chief on the old two-man *Andalucia Star*. It never ceased to amaze me how Greg handled the foreign Press with such a detached manner until I found out that before joining Marconi Marine in 1914 he had been a telegraphist on one of the London papers.

Being on the South American run we copied two sets of Press, the usual British official 'Shipress' and the Spanish equivalent from El Pacheco, just outside Buenos Aires. (On a two-valve HL2-LP2 receiver, by the way.) Greg always copied the Pacheco sked and would follow behind the transmission by one or two words, directly cutting the typewriter stencil with a translated and edited English version. Never once did I know him to make a mistake.

While translating and typing, he would sometimes pause to perform his party piece. Taking out his tobacco and selecting a cigarette paper, he would carefully tease a small amount of the mixture onto the paper. Laying this to one side he would catch up with the typing, then pause again to roll and seal the cigarette.

Finally, after again catching up with the text, he would light the cigarette and slowly enjoy his first deep breath of duty-free Justman's light shag. No doubt there are others who could perform such telegraphic feats, but I have yet to hear about them.

## Saltwater Memories

by John Cave  
G0WJM (ex VE3CZY)

### *Morse Characteristics*

Reading 'Good Hand Sending' in MM49 reminded me that the pre-war Morse standards of British coast stations were remarkably high, with some operators creating their own individual style, usually by lengthening the dashes or altering the spacing.

This resulted in a 'swinging' style that was not only pleasant to read but created the 'fist' of that particular operator. There was one character at the long-range medium wave station GLD (Land's End Radio) who had this down to a fine art, while GCC (Cullercoats) had another who was every bit as good.

Another characteristic in more or less general use on MW at the time was the way in which a station initiating a call on 500kHz (600 metres) would signal his intention to shift to the working frequency, at that time 425kHz (705 metres).

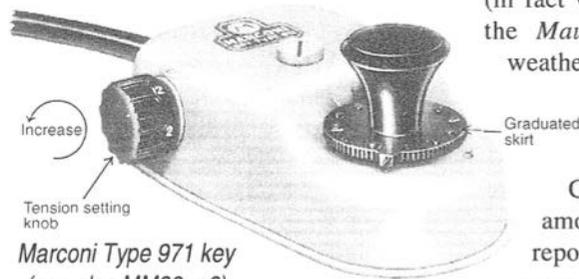
In acknowledgement, he would usually disregard the callsign of the distant station and send 'de G...' then the word 'up' followed by the long version of the figure seven (— — · · ·) the short version of zero (—) the short five (·) and, finally,

'up' again. It sounded especially effective, giving the impression of competence and urgency when using an LC-driven transmitter, if the tuning was slowly turned up as the last two figures were sent.

### Keys

Bug keys were starting to be heard on the American coast. They were carried as a personal adjunct and connected in parallel with the main key. Their owners were following the traditional independence of their predecessors who had substituted their coherers with a Fessenden electrolytic detector to hear the famous Christmas broadcast of 1906 when Fessenden himself took part in a musical evening that was heard all along the US eastern seaboard. Unfortunately, these bug users were often unpractised hands, making their Morse almost indecipherable and unpleasant to read.

In pre-war days, I sailed with several different Marconi spark transmitters and they all used the same hand key, which was replaced by the well-known model 365 when valve transmitters became common. (Every time I smell a butcher's shop with an air purifier I am reminded of the crackling blue spark, the hissing Morse, and the distinctive



Marconi Type 971 key  
(see also MM30, p6)

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ionised auras from the quenched gap transmitters in the radio rooms of yore.)

I wonder if anyone can recall those earlier keys, or has a photo of one? They were open, with no cover, and had a send/receive switch in the form of a semi-rotary barrel on the right hand side. They may have been made by RCC (Radio Communication Company) who, until being taken over by MIMCo produced some excellent and well advanced marine equipment.

At the other end of the scale, I wonder what happened to the dozens of keys (Marconi 971) that were produced for use with the original Mk1 'Oceanspan' transmitter? This was adjusted by unscrewing the knob and turning the finger plate underneath. It was a calamity, and no time was lost in replacing it with an updated version of the 365 workhorse.

### Weather Ships

Perhaps there are still among us those who remember the North Atlantic weather ships? Those gallant little ex-frigates sat on-station reporting regularly to the Met. Office no matter what the conditions were like outside.

I remember one particularly bad voyage when our speed had been reduced to nothing for a couple of days (in fact we had been blown back) and the *Mauretania* sent out her usual weather report with the remark that there were 'heavy seas; speed reduced to eighteen knots'. At the same time CTH in the Azores, known among mariners as 'Gentle Jesus', reported in his synopsis that there were 'gentle breezes' ... MM

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**W**ALTER POLK PHILLIPS (1846–1920) started his working life as a ploughboy on his father's farm near Grafton, Massachusetts. At the age of 15, he joined the American Telegraph Company as a messenger. In turn he became an operator (on one occasion he set a receiving speed record, and was awarded a gold pen for this achievement by Samuel F.B. Morse himself), a reporter, and then editor on various papers.

He went on to hold executive positions with the Associated Press and the United Press, and he spent the last years of his working life as an executive with the Columbia Gramophone Company

In 1879, whilst with the Associated Press he devised a scheme of abbreviations and codes for telegraphing press copy. The result was the Phillips Code. This was soon taken up by other organisations to become the standard code used on press circuits and in message work throughout North America – wherever the telegraph was used – and it was also used successfully as a form of shorthand for general and court reporting.

In the tradition of telegrapher-turned-inventor, Phillips patented an improved hand key (which was made by Tillotson) and, with Roderick H. Weiny, he invented the Weiny-Phillips single line repeater which remained in service for many years in the North American land-line circuits.

In one account of his life, he is also

## Walter Phillips and the Phillips Code

*by Tony Smith*

**Most readers will be aware that the Phillips Code was devised by Walter Phillips over a hundred years ago, and consisted of abbreviations of words or phrases used for condensing telegraphic press material, enabling it to be sent over the Morse wires faster and cheaper than previously.**

**But who was Walter Phillips? What exactly did his code contain? Who used it? How useful was it? And how long did it last?**

said to have been joint inventor of the 'Autoplex' semi-automatic key patented by Horace G. Martin in 1902. However, this may just be an assumption since the Autoplex patent, No. 732,648, of 30 June 1903, begins "Horace G. Martin, ... Assignor of one-half to Walter P. Phillips ...".

Phillips' name also appears with that of Martin and others when they filed

for a certificate of incorporation in the State of New York, on 19 February 1904, for the United Electrical Manufacturing Company, makers of the Autoplex and its successor, the Vibroplex.

(In his *Vibroplex Collectors' Guide*, Tom French W1IMQ, says that Phillips provided Martin with financial backing and encouragement, and in return for his faith in Martin received a half interest in the Autoplex patent rights.)

In 1914, Phillips proposed the adoption of a substitute for American Morse (see table below) which he felt would be acceptable to those unwilling to completely abandon the American code. He abandoned the long dash for L, and discarded the spaced dots in the letters C, O, R, Y and Z which had prevented that code from being adopted internationally when the Morse telegraph was original-

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**Phillips' Proposed Substitute  
for American Morse – 1914  
(Substituted Codes in Brackets)**

<p>A · ·</p> <p>B · · · ·</p> <p>C · · · · · (· · ·)</p> <p>D · · ·</p> <p>E ·</p> <p>F · · ·</p> <p>G · · · ·</p> <p>H · · · ·</p> <p>I · ·</p> <p>J · · · · ·</p> <p>K · · ·</p> <p>L · · · · ·</p> <p style="padding-left: 40px;">(—)</p> <p>M · ·</p> <p>N · ·</p>	<p>O · · · · (· ·)</p> <p>P · · · · ·</p> <p>Q · · · ·</p> <p>R · · · · (· · ·)</p> <p>S · · ·</p> <p>T —</p> <p>U · · ·</p> <p>V · · · ·</p> <p>W · · ·</p> <p>X · · · ·</p> <p>Y · · · · ·</p> <p style="padding-left: 40px;">(· · ·)</p> <p>Z · · · ·</p> <p style="padding-left: 40px;">(· · · ·)</p> <p>&amp; · · · ·</p>
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ly introduced into Europe in 1847 – but by 1914 it was too late for any major changes in the existing Morse codes to be seriously considered.

After his retirement, he was described as 'one of the most highly respected gentlemen ever to grace the telegraphic profession.' Another tribute said: 'Old-timers look back to the time of the United Press under Mr. Phillips' management as the "good old days of the UP", when many of them had their first experience with a man of their own profession who had not developed an abnormal cranium through climbing up in the world and who could be depended on as a friend in need.'

***How the Phillips Code Began***

The code evolved as a result of discussions in 1875 between a number of high-speed operators and Phillips, then manager of the AP Office in Washington. They disliked the drudgery involved in copying all matter in longhand, and decided to try to improve things for themselves.

Phillips, assisted by Willis J. Cook, devised a standard code of word and phrase contractions and in 1876 operators in New York, Philadelphia and Baltimore memorised and started using the code.

Copy now arrived at twice the speed it could be written down in longhand, so the abbreviated signals were taken on tape and transcribed visually after they were received. The traffic was sent in 'takes' of 150 words. At the end of each 'take' the sending operator held his key down for a few seconds to register a long ink stroke on the tape. At this point

the tape was torn off the recorder and passed to one of two transcribing operators. Thus two operators were translating and writing down the full text as it came in coded from a single transmitting operator.

Around 1883, when typewriters were introduced to press work, the recorders were abandoned and the operators received Phillips Code straight from the sounder, translating it directly onto the typewriter keyboard. One receiving operator could now do the work previously done by two.

Newspaper correspondents also found the Code helpful, using it to write their copy ready for transmission. Some became so expert that they used it for their original reports or interviews instead of shorthand, again cutting down on delays in the reporting 'chain'.

### **Publication**

The code was first published in 1879, and its copyright was renewed by Phillips in 1907 for a further fourteen years. Revised versions were printed in 1909 and 1914, and possibly in earlier years also.

In 1923 the magazine *Telegraph and Telephone Age*, which had published earlier editions under Phillips copyright, acquired the copyright and published a further revised, expanded version, eliminating obsolete words, adding newer ones, and changing contractions found to be ambiguous.

A further revised edition came out in 1925, and again in 1929. What was perhaps the final edition was published by *Telegraph and Telephone Age* in 1945. If any readers have dates for other

editions not mentioned here, please contact *MM*.

### **Introductory Section**

The following description is based on the 1909 revised version of the Phillips Code, published by *Telegraph Age* when the copyright was still held by Phillips. As noted above, the code was subjected to continuous revision over the years, so if readers have a different version its contents may vary a little or a lot, depending on which version they have.

The 1909 title page summarises the purpose of the code thus:

'A thoroughly tested method of shorthand arranged for telegraphic purposes, and contemplating the rapid transmission of press reports; also intended to be used as an easily acquired method for general newspaper and court reporting.'

An introductory section lays down a few basic principles:

Fractions are sent by inserting the letter 'e' between the numerator and the denominator, thus 3/16ths is 3 e 16. (This was already the practice in American Morse).

The code used was American Morse and as confusion could arise when sending a figure with several zeros, e.g. 1.000 or 1,000,000 (three zeros are three long dashes which when sent quickly could be confused with the figure 5 which is three normal dashes) such numbers were to be sent using 'tnd' for thousand, or 'myn' for million, thus:

'10 tnd' for 10,000 or

'248 myn' for 248,000,000.

'Hnd' could also be used in large numbers, for example:

4 hnd = 400  
5 hnd tnd = 500,000  
3 hnd myn = 300,000,000.

Decimals were sent by inserting the word 'dot'. Thus:

0 dot 34 = 0.34  
89 dot 92 = 89.92.

A row of asterisks in the copy to be transmitted was sent by repeating 'x' several times. In sending poetry, a paragraph mark (----) was to be used at the end of each line.

Operators learning the Phillips Code were advised to commit to memory the meanings attributed to the following single letters/figures:

B - Be  
C - See  
D - In the, or pence  
F - Of the  
G - From the  
H - Has  
J - By which  
K - Out of the  
M - More  
N - Not  
O - Of  
P - Per  
Q - On the  
R - Are  
T - The  
U - You  
V - Of which  
W - With  
X - In which  
Y - Year  
Z - From which  
4 - Where  
5 - That the  
7 - That is

(Figures 4, 5 and 7 when appearing singly in a text are sent as 'fr', 'fv', and

'sv' to avoid confusion with the above meanings. When occurring in groups they are sent as numbers in the normal way.)

### *Two-letter Words*

There follows a list of 359 of the most common two-letter abbreviations, again to be memorised. Examples of these include: ad - adopted; bk - break; cf - chief; gi - gigantic; ix - it is; Jp - Japan; nf - notify; ob - obtain; pb - probable; pp - postpone; tj - the jury; tq - the question; um - unanimous; Wm - William; xb - exorbitant; xm - extreme; xn - constitution; xs - exist; yf - yellow fever; zn - seen.

Having memorised this list, the beginner then went on to the remainder of the two-letter abbreviations, followed by as many of the three-letter codes as possible. In sending, when faced with long words he had not yet learned to abbreviate he was advised to drop as many of the vowels as possible 'without getting confused and demoralised'.

He was advised to continue learning the contractions, a few every day, and to use them as much as possible. The final words of advice, before launching onto the full list of Phillips code abbreviations are: 'The sending operator should always say "bk" when, from any cause, he breaks down in the middle of a word or interrupts himself. This signal is easily recognised, and is of the greatest possible assistance to the receiving operator.'

### *The Full List*

The main list in 1909 had over two thousand abbreviations of two, three or

## Punctuation

For use with the Phillips code, some of the original American Morse punctuation symbols were retained, some were changed, and a number of new ones were introduced.

All of the new ones were defined as two-letter symbols (apart from the symbols for 'decimal point' and 'percentage' which were three letters) as can be seen in the following list

### *Standard American Morse Symbols*

Period	· · - - - · ·	Not changed
Comma	· - - -	Not changed
Interrogation	- · · · ·	Not changed
Exclamation	- - - -	Not changed
Quotation	· - - - - - - -	Changed, see below
Parenthesis	· - - - -	Changed, see below
Semicolon	· - - - ·	Changed, see below
Paragraph	- - - -	Not changed
Italics	- · · · -	Not changed
Fraction line	·	Not changed

### *Phillips Code Symbols (Sent in American Morse)*

Colon .....	ko	Brackets .....	bx
Colon dash .....	kx	Capital letter .....	cx
Colon followed by quotation .....	kq	Small letter .....	i5
Semicolon .....	si	Begin underline .....	ux
Hyphen .....	hx	End underline .....	uj
Dash .....	dx	Dollars .....	sx
Begin quotation .....	qn	Decimal point .....	dot
End quotation .....	qj	Pounds sterling .....	px
Begin quotation within quotation .....	qx	Shilling mark (/) .....	ut
End quotation within quotation .....	qy	Pence .....	d
Begin parenthesis .....	pn	Percent .....	oso
End parenthesis .....	py	Not code .....	e5

more letters covering both single words and phrases, and over two hundred 'market' abbreviations for commercial dispatches all of which, presumably, many expert operators knew by heart.

This would not have been quite so difficult as it appears. Many of the words build up from a common base, such as 'ak' meaning 'acknowledge'. The addition of further letters gives further words, e.g., akd = acknowledged, akg = acknowledging, akm = acknowledgement, aks = acknowledges. This principle applies throughout the system, except where the addition of letters a, d, g, or m result in abbreviations for a different word which would incorrectly fit in without disturbing the context of the message.

In this connection Phillips wrote: 'Wherever the author has foreseen, or experience in working the system has shown, that a strict adherence to this rule would involve the receiver in perplexity, he has departed therefrom, but in no other cases.'

Mostly there are two and three-letter words. Those with more letters are either the result of adding suffixes to smaller bases, as explained above, or are abbreviations for well-known terms or phrases. These include, for instance: Potus – President of the United States; saik – shot and instantly killed; Scotus – Supreme Court of the United States.

In reporting business news some abbreviations were not so easily recognisable, e.g.: abnqh – active, but not quotably higher; dgfp – demand good at full prices; fpabnd – full prices asked but no demand; sbpun – small business prices unchanged.

Quite long words are often represented by just two letters, e.g.:

ap – appropriate; im – immediately;  
km – communicate; op – opportunity;  
rx – recommend; um – unanimous;  
Vz – Venezuela.

Examples of short abbreviations of phrases are:

acup – acted upon;  
aut – adjourned until tomorrow;  
bop – breach of promise;  
cj – coroner's jury;  
ckx – committed suicide;  
ftp – for the purpose;  
ixb – it is believed;  
ixc – it is claimed;  
ixu – it is understood;  
pep – presented a petition;  
uxc – under these circumstances;  
yam – yesterday morning;  
yap – yesterday afternoon;  
yav – yesterday evening.

The Phillips Code is no longer used, but according to Richard M. Harnett<sup>(1)</sup> some of its abbreviations have become so well established that they continue to be used by reporters in the wire services. Examples of these include the well-known POX for police and SCOTUS for the Supreme Court of the United States.

### ***Correct Spacing Essential***

Phillips wrote: 'I cannot too strongly impress upon the operator the desirability of thoroughly mastering the single and double letter, and as many of the three-letter contractions as possible. This much accomplished, he will easily double his usual rate of speed. Particular care should be taken to space properly between words, especially when, as will sometimes happen, the matter in hand

runs along for a line or two, almost entirely in single and double letters.'

In the 1925 edition, edited by E.E. Bruckner, operators are advised not to try to send at top speed because 'it defeats its purpose'. A slower operator, with an even temper and precise signals, was more likely to find the receiver at the other end easier to work with, resulting in fewer 'breaks' for repetition or correction. Bruckner wrote: 'It isn't the time one makes but the time one loses that is important'.

### **Copies Available**

The Phillips Code has a unique place in the history of the Morse telegraph. Initially devised over a hundred years ago for the benefit of the Associated Press, it came into widespread use in the United States to facilitate the fast and economic movement of telegraphic traffic of all kinds in the years that followed. Printed in a handy, pocket-size booklet, it was available, within living memory, at book stands, newsstands and stationery counters throughout the USA.

### **Expanded Contents in 1945 Revision**

In the 1945 revision, the Phillips Code was again updated to include changes and revisions in the language. A summary on its title page reflects also the changes of use that had taken place over the years, i.e.:

'A Thoroughly Tested Method of Stenography Arranged for Use in Wire and Radio Communication. Adaptable to Teletype, Teletypewriter and Telemeter Communication Services.'

It was also expanded in content to include 'certain of the "Q" and "Z" and miscellaneous codes used in commercial, aeronautical, marine and other radio services under wartime restrictions.'

It also contains the Japanese, Arabic, Turkish, Greek, Russian, International and American Morse codes, taken from 'McElroy's Chart of codes and signals, as compiled by T.R. McElroy, President, McElroy

Manufacturing Corporation, Boston, Mass. '; codes for major US cities; miscellaneous abbreviations; strength and readability of signals; US and world time charts; an advertisement for McElroy, and ten pages of advertisements for Vibroplex keys.

Published yet again by *Telegraph and Telephone Age*, this edition was sponsored by the TCR (Telegraph-Cable-Radio) Institute of America, 'an organization devoted to the advancement of the art of telegraph, cable and radio communication.'

An advertisement for *Telegraph and Telephone Age* explains that it was a monthly journal with news and articles covering all aspects of commercial communications. At that time it was also the official journal of the Morse Telegraph Club of America Inc., 'each month carrying a column of news about members.'

Today, original copies of the Code are only available secondhand, and early editions are greatly prized. However, there are several ways to obtain a reproduction.

The full list of the 1925 version of the Code, including a Baseball Supplement, but without the foreword and explanatory notes, is reprinted in *Wirespeak – Codes and Jargons of the News Business* by Richard M. Harnett<sup>(1)</sup>.

An abridged copy of the 1923 version can be downloaded from the internet, free of charge, from Robert Burnet's Canadian Telegraph Website <http://web.idirect.com/~rburnet/> compliments of Ken Miller. Ken has also published a full reprint of this version in its original format. This is available from Ken Miller, VE7CTW, 5300 Cantrell Road, Richmond, BC, V7C 3G8, Canada, price \$25 (CDN), or \$17 (US) for addresses outside Canada. Foreign payments in US funds only.

The reprint can also be obtained 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.

#### **Acknowledgement**

Thanks to John Elwood, WW7P, for providing *MM* with a copy of the 1909 version of the Phillips code; and to Gerald Stancey, G3MCK, for providing details of the 1945 edition.

#### **Reference**

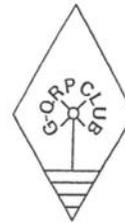
(1) *Wirespeak, Codes and Jargons of the News Business*, by Richard M. Harnett, Shorebird Press 1997. Reviewed in *MM*56, p44. *MM*

## **MM BACK ISSUES**

Stocks of those issues which are still in print (Nos. 31, 32, 34–36 and 39–60 only) are being transferred to the new publishers, and will be available for purchase from The Nilski Partnership (see inside front cover of this issue) at the beginning of 1999

### **G-QRP Club**

The G-QRP Club promotes and encourages low-power operating on the amateur bands with activity periods, awards and trophies. Facilities include a quarterly magazine, Morse training tapes, kits, traders' discounts and a QSL bureau. Novices and SWLs welcome. Enquiries to **Rev. George Dobbs G3RJV, St Aidan's Vicarage, 498 Manchester Road, Rochdale, Lancs OL11 3HE**. Send a large s.a.e. or two IRCs



## DEVOTED TO MORSE? YOU DESERVE THIS KEY



The  
**EUREKA**  
Morse  
Key

CAL-AV's **EUREKA** is a straight Morse hand key with two notable features: First, it is built into its own base in an inverted design. This yields an elegant appearance, protects the mechanism, and allows the armature and knob to be very close to the sending desk. Second, the key utilizes magnetic attraction in place of a tension spring. This provides a dramatic decrease in the force required as the knob starts downward, accelerating the armature. The result is a pleasant, positive contact closure, similar to a snap-action switch. It is difficult to depress this key only part-way. Tactile feedback is outstanding.

The case is machined from a single piece of solid brass. Case finish is a non-glare matte. Polished brass, chrome, or gold plating can be added at additional cost. The extremely stable finished key is 4 inches in diameter and weighs 4.6 pounds. The aluminium armature's axle rotates in a pair of sealed, stainless steel ball bearings. Both the contact gap and the force adjustment are on the case, and are therefore stationary. The contacts are coin silver. Knob style is derived from the U.S. Navy type 26003A key. A brass cover plate with neoprene anti-skid surface offers additional protection, and eliminates the need for a dust cover. A rear connector facilitates easy cable change. Please visit our web site to view a colour picture.

Expensive? Of course, and a good value as well. The **EUREKA** is a no-compromise design utilizing the finest materials available. Therefore, we offer you, the original purchaser, a **LIFETIME** warranty. Production is limited, with each key serialized. Price, including one standard cable assembly, is U.S.\$530. Orders may be placed by money order, cashier's check, or any major credit card, including Japanese JCB. Shipment began early September, 1998. Delivery of standard matte finish keys is from stock to 70 days ARO; FOB Tucson, AZ. Shipping weight is 6 pounds. Credit card billing at time of shipment. We export directly.

**CAL-AV LABS, INC.**  
1802 W. Grant Road, Suite 116  
Tucson, AZ 85745, USA

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# 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*

## GNT Key

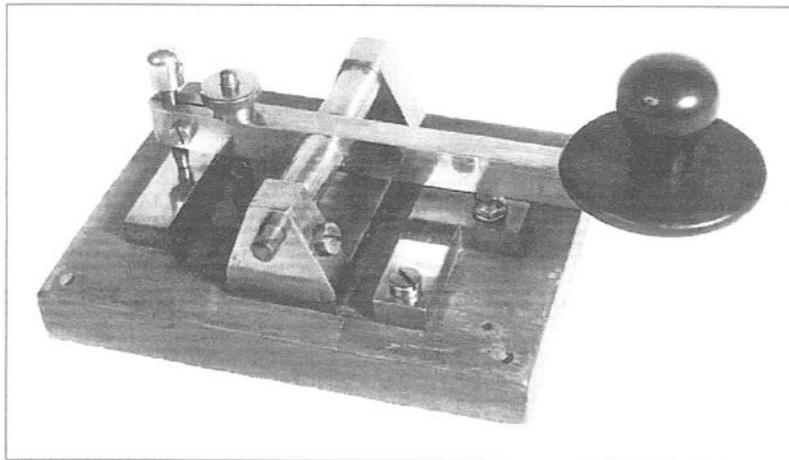
The very interesting article about the Great Northern Telegraph Company (MM59, p.46) and the accompanying photographs of GNT keys from Wyn Davies (p.52), prompts me to send a photograph of my GNT key (which, coincidentally, appears to have a greater kinship with the 1911 Siemens single current key on the back cover!).

This key was given to me by G4FFU, then GPO Executive Engineer (Transmission and Radio) North East. He had 'liberated' it from a building about to be abandoned, prior to demolition, at Newbiggin-by-the-Sea on the Northum-

berland coast, north of Newcastle upon Tyne.

He tells me that the line running inland from Newbiggin was the property of, and maintained by, the GPO. It ran to the Kenton Repeater Station on the outskirts of Newcastle, and thence via the repeater network to Leeds and London. At Kenton there was a room staffed by GPO personnel, known locally as the 'Oslo Room', full of 'gleaming brass and ebonite' and a large Norwegian Technical Dictionary!

From Newbiggin, eastward, there was a single-core gutta-percha cable, with a counterpoise 'sea earth' which



*Lee Grant's GNT key*

was, he insists, terminated at Kristiansand in Southern Norway. One presumes from this, that at some time after 1873 the GNT Scandinavian terminal was moved from Gothenburg, the location mentioned in the *MM* article?

Anecdotally, G4FFU reports that for some considerable time after the German occupation of Norway the undersea line was still in use – apparently by the Norwegian Resistance – but in approximately mid-1941 the line went dead. He says that after the war he was given to understand that it was cut by accident by a trawler.

I have related this tale to several Norwegian hams and, indeed, offered the key to the Norwegian Resistance Museum some years ago, but with no response.

*Lee Grant G3XNG  
Kirkhill, Northumberland*

#### **We've Got it Made!**

With reference to Gary Bold's comments under the above heading in *MM60*, p.14, about the advantages of CW over SSB, the implications of his remarks are important for radio amateurs.

They show that CW must be the preferred mode for exploring really marginal paths. Also a modestly equipped amateur running 100W CW to a dipole at 30 feet on 20m will put into DX-land a readable signal comparable to that of his neighbour who is running 400W SSB to a three element tri-bander at 60 feet.

Additionally, low-power CW enables many amateurs who have EMC problems to remain active.

I sent similar comments to *RadCom* (journal of the Radio Society of Great

Britain) last year, following correspondence in its columns on the same subject. For some reason they were not thought worthy of publication, although they could have provided some balance to the anti-CW letters that were published.

*Gerald Stancey G3MCK  
Oakham, Rutland*

#### **New Danish Stamp**

With reference to the recent features about Telegraphy on Stamps (*MM57* & *58*), I enclose a new Danish stamp (1998) on the same subject. The illustration is of an operator, named J.C.G. Reiffenstein-Hansen. It is part of a larger picture, from Tele Danmark's files, showing five employees at work in the main telegraph office in Copenhagen in 1911.

Reiffenstein-Hansen was born in 1861, and started work as an operator on 1 December 1877. In 1919 he wrote a book containing his memories of 40 years of working with telegraphy. At that time, he wrote that the personal feeling derived from the job had gone away, as machines had replaced a large part of the human element in the work.



*Jens Henrik Nohns OZICAR  
Bording, Denmark*

#### **"Undemocratic" Comments Misplaced**

Although not a subscriber to your magazine, I have seen the August issue, *MM59*, and must make a few comments

*MM61 – Christmas 1998*

about the tone of the various comments about the Morse issue under discussion between the RSGB and the RA. I do this from a personal point of view, and not as a member of the RSGB Council. As you probably know, I am an avid CW operator, with a number of contest top placings and DXpeditions to my name.

On page 18, Zyg Nilski reports on the July meeting hosted by the RA at the NEC. What he fails to report is that 75 percent of the audience who spoke on the Morse issue supported the reduction or abolition of the test. If you doubt this statistic, I have a record of all those who spoke and their comments.

On page 14, there is a comparison between the current RSGB stance on the Morse issue and the Society's survey of some 7500 members undertaken in 1996. This is an interesting comparison, as the results of the 1996 survey have not, until recently, been properly analysed.

As you know, the survey was statistically representative, the response being some 13 percent of all UK amateurs at that time. The views were polarised between Class 'A' and Class 'B' amateurs but applying the results statistically to the whole UK amateur population at the time would yield the following statistics:

- 46 percent of the amateur population supported removal of Morse as an international requirement to obtain an HF amateur licence
- If the international requirement were removed, 56 percent believed it should be removed in the UK
- If removed, 67 percent believed it should be replaced by an operating skill test.

- 56 percent supported a move to progressive licensing

From these statistics, you will see that the arguments were finely balanced. There is much evidence to suggest that opinion has moved further towards change here in the UK, and so comments about the representativeness of the RSGB position, or the undemocratic nature of its stance, are somewhat misplaced.

You may not feel it appropriate to publish this information, as I know it does not support your magazine's stance. However, I feel the better for having at least tried to introduce a few facts into the debate.

**Don Beattie, G3OZF  
Aylesbury, Bucks**

*(Mr Beattie knows little about MM if he is under the impression that we only report the Morse test debate from one side. We have consistently reported statements by representatives of the RSGB, and such organisations as ORACLE and 'No Code International', expressing their views on why the Morse test speed should be reduced and the test eventually abolished; and we have been congratulated by many readers on the fairness of our reporting.*

*In fact, in the issue referred to there is a hard-hitting anti-Morse test statement by NCI on page 3, and on page 16 we quote extensively from a letter written by RSGB President Ian Kyle, underlining the RSGB position.*

*It is interesting to compare MM's practice in reporting both sides of the issue with that of Mr Beattie's own organisation. In RadCom, December 1998, as in this issue of MM, the decision of*

the South African national society (SARL) to support the RSGB's stance is reported, as is the meeting of the IARU Administrative Council held in Venezuela recently. What is not reported in Rad-Com, however, is the view of the Administrative Council, following discussions by three IARU Conferences over a three-year period, that there should be no reduction in the minimum qualifications for a licence to operate an amateur station, including the Morse test.

Regarding Zyg Nilski's report, Zyg comments: "I didn't record the content of the meeting in the way that Mr Beattie has. I was much more concerned with the quality of the points raised and to report the balance of the argument. I am sorry that he is disappointed. He may recall that the Radio Communications Agency, who ran the meeting, insisted that neither individuals nor organisations should attempt to use the meeting to collect votes. It seems that they failed."

Concerning the 'comparison' on page 14 on the 'undemocratic' actions of the RSGB with which Mr Beattie takes issue, the actual comparison made by MM was between the number of respondents to the 1996 survey (7500) and the number of letters (approximately 200) known to have been received by the RSGB in response to their recent request for views on the proposed 5 wpm licence. The views expressed on page 14, which Mr Beattie is concerned about, are of course those of MM readers.

It is interesting to learn that the 1996 survey results have recently been "properly analysed" and are now considered to be "statistically representative". Isis Research Ltd, who conducted the survey

on behalf of the RSGB, included a detailed analysis in their 44-page report issued in 1996 after the survey was completed. In this report, they commented that while the sample was representative of the Class A/B split of the RSGB, it was not representative of the amateur population as a whole.

Non-members were invited to participate in the RSGB's survey, but very few chose to do so. MM thought at the time, and still thinks, that it is quite outrageous to conduct a survey among members of a society and then adjust the results to claim that they represent the views of a large number of people who have declined to participate in it. At best, such a result is hypothetical, and it should carry no more weight than that. – Ed.)

### **QRT 500 Video Excellent**

Yesterday I received a copy of the Discovery Films video *QRT 500* which was mentioned on page 7 of MM60. Many thanks to MM for bringing this excellent video to my attention.

The sounds of UK coast station transmitters sending the final msgs on 500kHz makes this tape a real treasure. I highly recommend it to all CW enthusiasts – particularly ex-marine R/Os.

*Dave Gunning  
Prestatyn, North Wales*

### **Computer Error Message in Morse!**

The Oberon computer operating system, at least the IBM PC version, (<http://www.oberon.ethz.ch/oberon/>) sends its error messages in Morse code if it cannot find a display to print it on!

I found this out the hard way when I

forget to install an important file. I was so startled to hear Morse coming from the computer I missed the beginning of the error message and had to get a repeat!

*Stan Barr G0CLV  
Moreton, Merseyside*

### Unknown Bug MM60

The unknown bug on page 42 of MM60 is a Sears Roebuck bug made by Les Logan c.1940. There are at least three versions of the same design:

1. All chrome as depicted in MM60
2. All black wrinkle finish

3. Black wrinkle base with chromed pivot support.

A 1940 Sears Roebuck catalogue calls this bug a 'Les Logan #501' although clearly the well-known #501 model was different, with its 'T' carrying handle and generally higher quality.

There is no identification on any Sears Roebuck bug but all were of typical Les Logan tooling and knurling style. Incidentally, there is also a smaller version Sears Roebuck bug comparable to a Vibroplex Blue Racer.

*Dave Pennes, MD, WA3LKN  
Indianapolis, IN, USA*

## Readers' ADs

### FOR SALE OR TRADE

VIBROPLEX WWII deluxe 'Original' bug with battleship grey base, red paddles and jewelled movement, \$225. Polechanger key, \$65. Railroad 'strap' key, \$50. Brass oval landline keys - many manufacturers and varieties, \$50 each. Railroad telegraph patch panel ('pegboard'), beautiful condition and with a full complement of pegs, \$125. Scarce Bunnell Barclay Box-relay KOB, \$225. Dave Pennes, 4607-C Santa Cruz Drive, Indianapolis, IN 46268-5354, USA. Phone: (317) 929-8876.

### FOR SALE

PERERA'S TELEGRAPH COLLECTOR'S GUIDE. 250 Pictures, Descriptions, and Prices. \$10 in US funds plus \$2 domestic and \$5 overseas airmail. Available from Artifax Books, Box 88, Maynard, MA 01754, USA. Visit the W1TP Telegraph Museums: <http://w1tp.com>

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, USA. Phone: 516-261-1576. Fax: 516-754-4616. E-mail: [joekey@aol.com](mailto:joekey@aol.com)

THE MM Q & Z CODEBOOK, a comprehensive 82-page 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 of Morsum Magnificat are still available from the editorial office at regular prices. See page 41 for details. - Ed.)*

## Time to Say Goodbye!

MANY READERS have sent letters of appreciation and good wishes since we announced our 'retirement', and these are greatly appreciated. It is good to know that our efforts to 'fly the flag for Morse' are so well regarded!

*Morsum Magnificat* has seen several changes since it was first published in the Dutch language in 1983. It became an Anglo/Dutch publication in 1986, and after the closure of the Dutch edition in 1987, due to the illness of its founder, Rinus Hellemons PA0BFN, it moved to the UK to become an English-language-only publication.

It looks more professional today than it did in the early days, thanks to modern computer technology, but we like to think that the high quality of its contents has changed very little over the years. *MM* remains committed to its original aim, to provide enthusiasts with a journal of their own, covering all aspects of Morse telegraphy, past, present and future.

With the imminent implementation of GMDSS and the closure of even more coast stations, Morse at sea is fast disappearing although the indications are that it will still remain in use for a while in some parts of the world. Within amateur radio, long visualised as the eventual last bastion of Morse telegraphy, CW operation is increasingly seen as an archaic unwanted embarrassment. The Morse test is now thought by many national societies to be the only thing stopping a vast new influx of data communication-orientated newcomers who, the societies believe, will change the image of amateur radio in the 21st century.

In the face of this downgrading process the need for a dedicated international Morse magazine is greater than ever. As time goes on, there will be less and less Morse material in other publications and eventually, apart from club journals, only a specialist magazine like *MM* will survive to cater for the Morse enthusiast.

We are grateful to our many contributors, world-wide, who have provided us with articles of such high quality over the years. Not only quality, but quantity too. At any one time there have been something like seventy articles awaiting publication, which is why there has sometimes been a long delay before your material appeared in print!

An 'unsung hero' of *Morsum Magnificat* is John Watkins, G4VMR. His company, Hertfordshire Display plc, has printed every issue since *MM* was first published in the UK. Our thanks go to John for his invaluable help, without which *MM* would not have survived. We are pleased to report that he will be continuing to print *MM* for Zyg Nilski.

Someone else rarely mentioned is our cartoonist, John Worthington, GW3COI. John willingly offered his services when *MM* came to the UK, and his humorous interpretation of stories in the magazine has become a valued part of our presentation. Hopefully, he too will continue to be involved with *MM* in the future.

We were delighted to find such an enthusiastic successor as Zyg to take over the reins and wish him every success. For our part, it has been a privilege and a pleasure to work on *MM* over the years, and we thank everyone for their support and encouragement. Just being a reader of *MM* is a major contribution in itself!

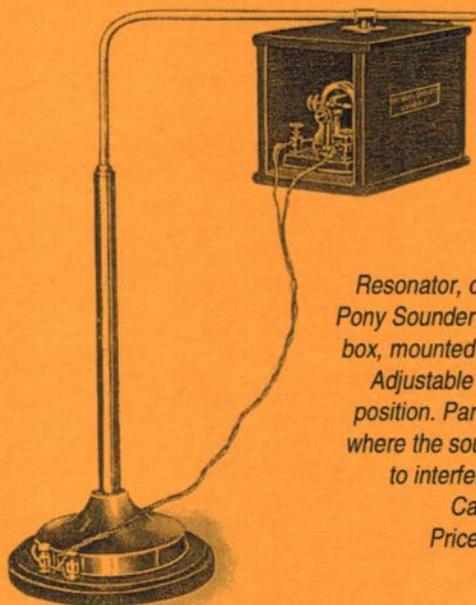


**Geoff Arnold**  
Editor



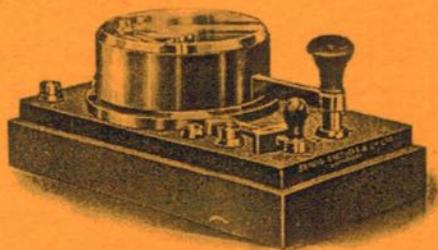
**Tony Smith**  
Consultant Editor

From the Morse Telegraph Apparatus catalogue of  
Siemens Brothers & Co., Ltd, London, 1911



*Resonator, consisting of an ordinary Local Pony Sounder in a polished mahogany sound-box, mounted on a nickel-plated brass stand. Adjustable both as to height and lateral position. Particularly adapted for situations where the sound of the instrument is subject to interference from outside noises.*

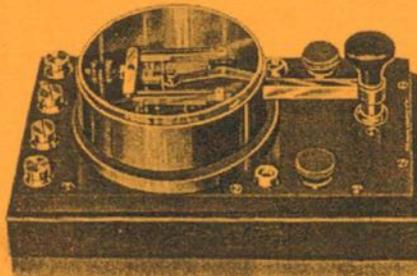
*Catalogue No. T 1066.  
Price (in 1911) £2. 10s. 0d.*



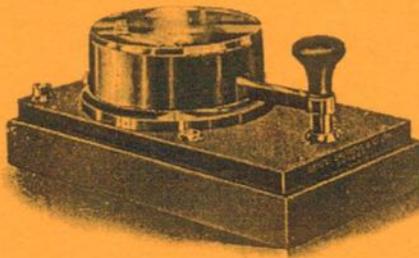
*Double-Current Key, Post Office Pattern. Fittings and cover of polished brass with bevelled glass top, complete with switch and five terminals; all mounted on an ebonite slab fixed on a polished mahogany base. Catalogue No. T 1038.*

*Price (in 1911) £6. 0s. 0d.*

*Continued on back cover ...*



*Reversing Key, Post Office Pattern. Fittings and cover of polished brass with bevelled glass top, and six terminals, but without switch; the two line terminals are capped with ebonite. The whole mounted on an ebonite slab fixed on a polished mahogany base. For quadruplex working. Catalogue No. T 1039. Price (in 1911) £6. 10s. 0d.*



*Increment Key, Post Office Pattern. Fittings and cover of polished brass with bevelled glass top, all mounted on an ebonite slab fixed on a polished mahogany base, with three terminals. For quadruplex working. Catalogue No. T 1040. Price (in 1911) £4. 10s. 0d. This is a special form of Single-Current Key arranged on the plan of the Double-current Key.*

*These three keys are fitted with Gold-Silver contacts in accordance with the latest Post Office practice. If Platinum contacts are required, prices vary with the market price of Platinum.*

*From the Morse Telegraph Apparatus catalogue of  
Siemens Brothers & Co., Ltd, London, 1911.  
(Contributed by Fons Vanden Berghen)*