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Flying the flag for Morse

Morsum Magnificat

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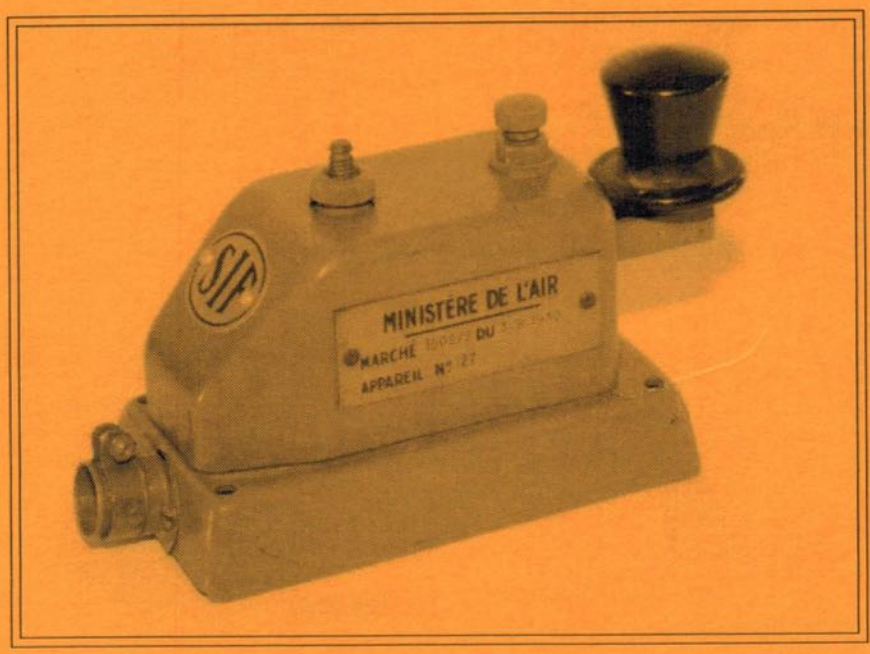
The Morse Magazine



French Military Airborne Key

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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. It has been produced four, then six times a year in Britain since 1986, and up to January 1999 was published and edited by Tony Smith, G4FAI and Geoff Arnold, G3GSR. It aims to provide international coverage of all aspects of Morse telegraphy, past present and future. MORSUM MAGNIFICAT is for all Morse enthusiasts, amateur or professional, active or retired. It brings together material which would otherwise be lost to posterity, providing an invaluable source of interest, reference and record relating to the traditions and practice of Morse.

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"When does my subscription expire ...?"

This is printed on the top line of the address label.
Also, we shall jog your memory with a renewal reminder included with that final issue.

MM Back Issues

Issues Nos. **31, 32, 34–36** and **38–62** available from the Editorial offices (see top of page). Price including postage £2.50 each to UK; £2.70 to Europe; £2.85 Rest of the World by airmail. Deduct 20% if ordering 3 or more.

FRONT COVER

French Army key for airborne use - 1939
Photo/Collection: Jean Le Galudec

Comment

In May a joint announcement was made by Britain's Radiocommunication Agency and the RSGB that a new class of amateur radio licence to be introduced. It gives access to all HF Bands with a 5 wpm Morse test. No doubt the RA is hoping that this will reduce usage of VHF/UHF bands for which there is increasing commercial demand whilst the RSGB is seeking to stimulate an interest in amateur radio in a younger generation.

The RSGB is doing the job for which it was set up, namely, to promote amateur radio -now in an age of declining interest. I suspect that most who are excited by the idea of communicating by radio are already doing so. Computers, modems, the internet and mobile phones are the devouring interests of the new technophiles. But let us all hope that the strategy works and that some of those 5 wpm hams will come to experience the pleasure of Morse, and move up.

Another aspect of Morse which is being affected by the internet is key collecting. The Morse key, a relatively small item, easy to store or display, is a touchstone of the history and technology of the telegraph and radio communication. Many collectors have acquired keys from junk-boxes and flea-markets or purchased them at user prices, i.e. the price that an operator would pay for a second-hand key. Keys are swapped as often as they are sold or purchased. The internet seems to be changing all that. Cocking an ear to' collector-talk' at the Dayton Hamfest, the internet auction-house, 'eBay' is becoming a popular place to trade keys and Morse ephemera, with a dramatic, some would say devastating, effect on prices. Internet auctions offer lots to bidders world-wide. But is it collectors that are buying these keys or are these casual purchases by people that buy one as a curiosity? Do the prices being achieved reflect true demand or is it a passing phase? Nobody seems to know.

Zyg Nilski G3OKD

Contents

Adverts

In MM63 the title of the article on p.32 should read, "The Step Behind Habit By Gaspard Lizee, VE2ZK"

A sticky label is enclosed to correct this error. My apologies to Gaspard. - Ed

News

New 5 wpm A/B Licence Announced for UK

The RSGB and Radiocommunications Agency made a joint announcement in May of a new class of radio amateur licence for Great Britain which "...sets the scene for the new millenium." They say "UK Amateur Radio Licensing is about to undergo the most exciting changes seen since the introduction of the Novice Licence in 1991."

They announce what is described as "two major initiatives which will allow greater access to the full range of facilities that amateur radio has to offer, and broaden the appeal of the hobby to a wider audience. More amateurs will have the opportunity to experience world-wide communications, and newcomers to the hobby will find it possible to make contacts on a wider range of frequencies."

They are heralded as "substantial improvements which stem from discussions between the Radio Society of Great Britain and the Radiocommunications Agency, following consultation with the amateur radio community carried out by both organisations."

The new class of licence will be known as the A/B licence, and use the callsign series M5xxx. It is to be introduced in the early autumn and will provide access to all amateur bands, on passing the Radio Amateurs Examination and a 5 words per minute Morse test. A maximum power of 100 Watts PEP output will be allowed on the HF bands and 400 Watts PEP output above 30 MHz.

Enhancements to the Novice A & B licences were also announced.

If the World Radio Conference planned for 2003 includes discussion on the removal of mandatory Morse testing for access to frequencies below 30MHz, "...the existing licence structure will be replaced with an incentive-based system. In the meantime, discussions are under way to ensure that Morse and data sub-bands are safeguarded by incorporating them into licence schedules."

MM on Tape for the Visually Impaired

Jim O'Keefe, WE6V, San Jose, California has kindly volunteered to read MM onto cassette tape for those who are visually impaired. This is experimental, which we hope will continue if there is a demand. If you know of someone who would like this service, please contact MM.

Morsecodians at Alice 1999

The Morsecodians Fraternity operated their annual 'landline' circuit in April, from the historic Overland Telegraph Station at Alice Springs to the National Science and Technology Centre in Canberra, handling 1336 messages on the line during this event.

This year three operators from the Morsecodians Fraternity of Western Australia and one from the Sydney chapter went to Alice Springs while other Sydney members manned the Canberra end.

For the first time it was decided to send overseas messages on the line from Alice. Previously, only Australian messages were transmitted and overseas messages were simply posted to their destinations. This year, in return for a flat fee of $3, overseas messages were transmitted in Morse from Alice Springs and posted to their destinations from Canberra. During the week some 260 overseas messages were transmitted, most of them in foreign languages, mainly German.

(Report from John Houlder)

Last N. American Morse Maritime Station Closes

KFS, Half Moon Bay Radio is the last North American station still on the air soliciting for Morse traffic on HF. It was originally owned by ITT and now by Globe Wireless. The original transmitter was located at Palo Alto and was the home of an enormous Federal arc transmitter which was later moved to Berkeley University and used for nuclear research.

Dick Dillman, W6AWO and Chief Operator at the Maritime Radio Historical Society was listening to the repeated CQ on 4MHz and a ship actually called with traffic. And KFS had traffic for him. He says, "How sweet it was to monitor the superb op at KFS handle the traffic with off-hand professionalism, giving not a hint that he was the last man standing in an honourable profession."

On Monday, 12 July, KFS will cease its Morse service. Dick has been told there will be ceremonial messages sent and plans to be there to witness the event - although it will certainly be a bitter-sweet day for him. "KFS was the


TELEGRAPH MESSAGE

Transmitted in morse code between Canberra and the Alice Springs Telegraph Station

12 30TH APRIL

NATIONAL SCIENCE AND TECHNOLOGY CENTRE CANBERRA ACT

MR T SMITH
13 MORLEY RD
SHERINGHAM NORFOLK NR26 8JE ENGLAND

GREETINGS FROM CANBERRA VIA ALICE SPRIN

OLD TELEGRAPH STATION
30 APR 1999

Part of a telegraph message transmitted via the Morsecodians "landline"

first station I worked as Radio Officer aboard the M/V Rainbow Warrior/GSZY. Those with interest in such things may wish to monitor KFS on that sad day.

The frequencies for KFS are listed below. Not all are likely to be in operation. The ones marked with an asterisk are the ones I have actually heard KFS on recently. But their recent traffic lists include mention of 500KHz so listeners within range may want to monitor that historic channel as well. After 12 July there will be only... silence." QRG for KFS:

500	6365.5	12844.5
4228	8444.5 *	17026
4274 *	8558.4	17184.8
6348	12695.5	22515

New Book on Clinical Uses of Morse Code

A new textbook on the clinical uses of Morse code is to be published in August. The title is "Modern Morse Code in Rehabilitation and Education: New Applications in Assistive Technology", ISBN 0-205-28751-4. This comprehensive textbook will be published by Allyn & Bacon of Boston. It is the culmination of over 3 years work by the author, Dr Thomas W. King, Professor and Clinical Supervisor, Department of Communication Disorders, University of Wisconsin-Eau Claire. Tom King is also KF9I and Editor of MORSELS, the newsletter of 'Morse 2000 Outreach' which promotes research in the use of Morse code in rehabilitation and education.

Signal Corps Association 1860-1865

The Signal Corps Association (SCA) 1860-1865 is a national group of private citizens sharing an interest in the signal and secret services of the North and South during the American Civil War. A period-attired and equipped living history segment known as the Re-enactor's Division also exists within SCA; hence the acronym "SCARD" is used.

SCA provides a medium for students, researchers, historians and re-enactors to investigate the signal, telegraphic and secret service developments during the War Between the States. Through signal training camps, re-enactments, living history programs, visits to schools and libraries, lectures and memorial programs, SCA hopes to develop and share its archive with others.....

By encouraging the study of period tactical telecommunications and intelligence gathering, including codes, cryptography, aerial telegraphy (flag), electric telegraphy (wire), observation balloons, signal rockets, lights and mortars, spies, scouts, agents and secret operations, SCA seeks to perpetuate the memory of America's mid-19th. century military and civilian communication pioneers and care for their monuments, markers and final resting places.

SCA and its re-enactor's division has departments, detachments and or "stations" in more than 30 states. Many associates are not re-enactors, but all do share an interest in the study and understanding of those who manned the

telegraph key and sounder, or used telescopes to watch at innumerable observation posts, relaying vital despatches via flag and torch from hills, towers, rooftops, tree platforms and the mastheads of ships.

SCA holds no meetings, has no mandatory events and collects no dues. Members are as active in the association as they have time to be. Since 1987 SCA's monthly publication, 'Signal Cipher', has served as the organization's official communication. In January 1999 it was converted from paper to cyber text. Articles, announcements and queries are submitted by readers and focus on signal, telegraph and secret service operations, methodology, historical personages and related subject matter.

In the new year it is intended to create separate signal and telegraph training departments on the home page. SCARD will use this site for the introduction of national re-enacting communication standards, which when linked with practical field instruction and examination will result in the awards of credible and nationally recognized certification.

It is hoped soon to welcome visitors to the organization's general announcement access page "Eagle's Nest" to view the list of up-coming national, regional and local living history presentations or re-enacting events, where SCARD detachments are currently considering or have secured a functional presence.

(Extracted from SCARDS's web site, http://members.tripod.com/~SCARD1/index.html where considerably more information is available)

BBC Programme Celebrates Morse Code

The BBC Radio 4 network broadcast the awaited 'Morse Story' on Thursday 10th June at 11.30pm. It was billed as an 'experimental feature' and tried to convey to a general audience how Morse is a second (or first) language to a telegrapher and the excitement and pleasure which practitioners get from its use. There were many contributors to the programme, a number well-known in the pages of MM, (including the editor).

Susan Yim's letter as it appeared in MM63 was read by an actress. Probably the most well known of the contributors was Alan Sillitoe, the author, who had been a telegrapher in the RAF . A lot of airspace was given to CW and verbal dits and dahs to create the sense of the code as a language. It was interesting that every speaker compared Morse to the rhythm and form of music, poetry or prose.

To the experienced 'brass-pounder' the programme may have seemed to spend a lot of time on almost surreal sound effects, but those general listeners I have spoken to were impressed by how well the programme had been crafted. In an age when most people never encounter Morse, it had added to their understanding of how those 'mystical' dots and dashes are truly elements of a language.

Much has been written about the history, technology and techniques for learning Morse but 'Morse Story' uniquely exploited sound radio in a celebration of a great innovation which was the backbone of long range communication for so long.

World HST Championships 1999

The International Amateur Radio Union's 3rd High Speed Telegraphy World Championships were held in Pordenone, Italy, from 28th April to 2nd May 1999, with competitors from eighteen countries taking part.

Top scorers of the various categories were as follows (All Speeds (Sp) shown as characters per minute):

RECEPTION OF 5-LETTER GROUPS FOR A PERIOD OF ONE MINUTE

Categ. A. Junior Females
Elena Sibagatoulina RV9CPW. Sp 290
Categ. B. Junior Males
Pavel Zalepin EW7PZ. Sp 320
Categ. C. Females
Elvira Arioutkina UA4FJ. Sp 320
Categ. D. Males
Eugueni Panchnine RV9CPV. Sp 360
Categ. E. Senior Females
Larissa Makagonova RV3AEF. Sp 240
Categ. F. Senior Males
Stanislav Zelenov UA3VBW. Sp 280

RECEPTION OF 5-FIGURE GROUPS FOR A PERIOD OF ONE MINUTE

Categ. A. Irina Tsiatserskaya EU1IY. Sp 460
Categ. B. Roman Imankoulov RX9CFO. Sp 410
Categ. C. Elvira Arioutkina UA4FJ. Sp 470
Categ. D. Omari Sadoukow UA4FFP. Sp 440
Categ. E. Larissa Makagonova RV3AEF. Sp 340
Categ. F. Stanislav Zelenov UA3VBW. Sp 430

RECEPTION OF 5-CHARACTER MIXED GROUPS FOR A PERIOD OF ONE MINUTE

Categ. A. Irina Tsiatserskaya EU1IY. Sp 300
Categ. B. Pavel Zalepin EW7PZ. Sp 260
Categ. C. Larissa Borissenko EU7KT. Sp 270
Categ. D. Andrei Bindasov EU7KI. Sp 330
Categ. E. Larissa Makagonova RV3AEF. Sp 220
Categ. F. Stanislav Zelenov UA3VBW. Sp 230

TRANSMISSION OF 5-LETTER GROUPS FOR A PERIOD OF ONE MINUTE

Categ. A. Irina Tsiatserskaya EU1IY. Sp 226
Categ. B. Roman Imankoulov RX9CFO. Sp 207
Categ. C. Larissa Borissenko EU7KT. Sp 219
Categ. D. Andrei Bindasov EU7KI. Sp 242
Categ. E. Raisa Volkova EW1YL. Sp 150
Categ. F. Stanislav Zelenov UA3VBW. Sp 179

TRANSMISSION OF 5-FIGURE GROUPS FOR A PERIOD OF ONE MINUTE

Categ. A. Volha Mishuk EW1AAH. Sp 194
Categ. B. Roman Imankoulov RX9CFO. Sp 164
Categ. C. Elvira Arioutkina UA4FJ. Sp 192
Categ. D. Andrei Bindasov EU7KI. Sp 244
Categ. E. Tatiana Pusouskaya EW7TP Sp 122
Categ. F. Stanislav Zelenov UA3VBW. Sp 156

TRANSMISSION OF 5-CHARACTER MIXED GROUPS FOR A PERIOD OF ONE MINUTE

Categ. A. Irina Tsiatserskaya EU1IY. Sp 163
Categ. B. Sergei Tatarinov EW1AAK. Sp 165
Categ. C. Elvira Arioutkina UA4FJ. Sp 144
Categ. D. Eugueni Panchnine RV9CPV. Sp 175
Categ. E. Larissa Makagonova RV3AEF. Sp 131
Categ. F. Tomas Mikeska OK2BFN. Sp 132

RADIOAMATEUR PRACTISING TESTS

RUFZ TEST

(In the RUFZ Callsign Copying Program test, compiled by DL3DZZ, competitors make two attempts to receive 50 callsigns generated by the program, and the best attempt is taken as the competitor's entry. See MM45 for a fuller explanation.)

Categ. A. Elena Sibagatoulina RV9CPW: 82614
Categ. B. Roman Imankoulov RX9CFO : 90786
Categ. C. Larissa Borissenko EU7KT : 61787
Categ. D. Eugueni Panchnine RV9CPV : 108561
Categ. E. Tatiana Pusouskaya EW7TP : 30672
Categ. F. Ivanov Volodymyr UT1IJ : 50068

PED TEST

(In the PED Pile Up Trainer Program test, compiled by JE3MAS, competitors make as many contacts as possible in a period of five minutes. They are allowed two attempts, and the best attempt is taken as the competitor's entry.)

Categ. A. Elena Sibagatoulina RV9CPW: 34
Categ. B. Mihai Hirjamn YO3GEC: 39
Categ. C. Nora Zsamboki HA4YY : 38
Categ. D. Antal Hudanik HA3OV: 47
Categ. E. Raisa Volkova EW1YL : 27
Categ. F. Ivanov Volodymyr UT1IJ: 34

CATEGORY WINNERS

Categ. A. Irina Tsiatserskaya	EU1IY (Belarus)
Categ. B. Roman Imankoulov	RX9CFO (Russia)
Categ. C. Elvira Arioutkina	UA4FJ (Russia)
Categ. D. Eugueni Panchine	RV9CPV (Russia)
Categ. E. Raisa Volkova	EW1YL (Belarus)
Categ. F. Stanislav Zelenov	UA3VBW (Russia)

FINAL TEAM RESULTS

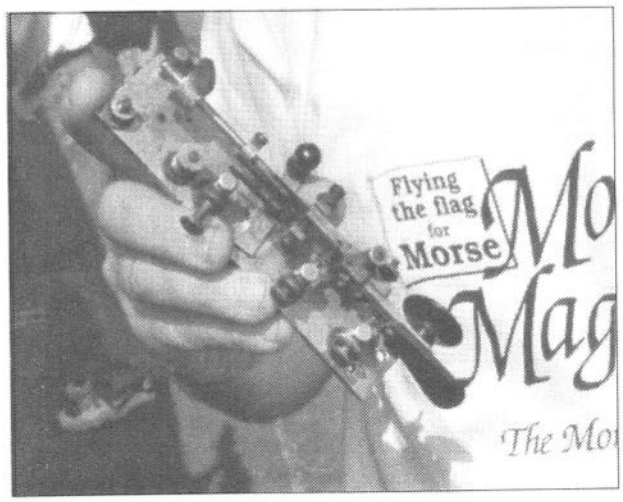
1 Russia
2 Belarus
3 Romania
4 Hungary
5 Croatia
6 Bulgaria
7 Czech Republic
8 Germany
9 Macedonia
10 Ukraine
11 Korea
12 Netherlands
13 Japan
14 Austria
15 Italy
16 Bulgaria
17 USA
18 Slovenia

(Results received from László Weisz HA3NU, IARU HST Coordinator.
Note: For information about the history of the HST Championships, and details of the Championship rules, see MM59, p.5. Ed.)

IARU HST championships: (left) Valeria Csaszar HA3FO, Secretary of the Hungarian CW Group, (right) Vito Vetrano IN3VST, Chairman of Radiotelegrafista, Italy.

Rare Key Find at Dayton

The focal point for key collectors and telegraph enthusiasts at the Dayton Hamvention was Tom Perera's Telegraph Museum where there were literally hundreds of very rare telegraph items on display. This year 'Dayton', the largest hamfest in the world, took place on 14th-16th May and Morsum Magnificat was a guest at Tom Perera's stand. It was a great pleasure to meet MM readers from the USA as well as a sprinkling from around the world.



Tom Perera sporting an MM T-shirt and one of the Vibroplex Midgets, valued at $10,000

Tom Perera (W1TP) is Professor of Psychology at Montclair University, New Jersey when he is not working on his collection built up over 45 years. Both the serious collector and casual browser are attracted to his stand. Some come to trade, all admire the museum pieces and others arrive with a key handed down from a relative or for an "opinion" on an item found in an attic. Dayton '99 will be remembered for the two Vibroplex Midgets which are rare Vibroplex keys generally valued at over $10,000. Only 4 were known to exist and two previously unknown examples turned up at Tom's stand and he was able to aquire one of them.

This was also the occasion for the launch of the second edition of 'Perera's Telegraph Collector's Guide', designed as an inexpensive, pocket-sized source of basic information and reference material for new and experienced collectors. Its 100 pages (up from the previous 80) include fully indexed information with 300+ pictures and a price guide for North America.

The stands of Bencher and Vibroplex were well worth a visit. Bencher have added to their range of many fine keys, the Bencher Mercury paddle. Vibroplex displayed the 'Blue Racer 2000 - The Millenium Bug' and not a computer in sight!

(Perera's Telegraph Collector's Guide is available from the MM Bookshelf - Ed)

Ergonomic Iambic Keying

Dr. E. Geoffrey Walsh

GM4FH

MORSE KEYS HAVE A history of more than 150 years and inevitably traditions have developed. So it comes about that systems are in use now for historic reasons and habits have been established which may not now be the best bearing in mind recent advances in technology. It was natural for the original straight keys to be operated vertically and this for them is still eminently sensible. However, when bug keys were introduced about 100 years ago the system depended on what is effectively a torsion pendulum; the dots were generated by a bob on a flat spring which oscillated in the horizontal plane, the motion being from side to side. Dashes were produced individually by pushing the paddle to the other side. When iambic keyers were introduced, a development made practicable with the invention of the silicon chip, the same movement was employed, it being usual to have two paddles one for dashes, one for dots squeezed horizontally between the thumb and index finger. An interesting recent innovation has been the "Twinky" of DK1WE which consists essentially of two miniature straight keys on the same base operated vertically. These keys are distributed in the U.K. by the QRP Component Company.

However when keying it is better not to use the the small muscles in the hand as they fatigue easily. This was one cause of that tiresome malady, telegraphists cramp. I have now devised a keyer in which there is essentially no resistance to movement, there being no spring to work against and which depends almost entirely on small rotatory movements of the forearm in a clockwise and anticlockwise direction; the medical terminology for this is "supination" and "pronation". The muscles of the hand itself need to do almost no work. As the rotation is about the long axis of the arm the inertial resistance to motion is minimised.

The system uses touch contacts, the circuitry being similar but not identical to that described recently elsewhere.[1] Three brass discs are used. I have employed plain brass buttons as are used on some blazers; they were obtained from the haberdashery counter of a large departmental store. Wires can easily be soldered onto the rings on the

back. The discs are mounted on tap washers used as insulation and glued with "Evostick" on a small flat aluminium box used to house the battery and the electronics. For hands of normal adult size I have used discs of 3/4 inch diameter, the centres being separated by 1 inch. In use the middle finger rests on the middle disc throughout and dots or dashes can be generated by touching the index finger or ring finger onto the corresponding one. I arranged a reversing switch to interchange the connections for using dots and dashes but found little difference in the facility of the use either way. For a sequence of dots alternating with dashes both the index and rings fingers touch; the forearm then gently depresses the hand. A variation would be to provide the earth by having the opposite hand resting on a metal plate connected to the apparatus. Two buttons only would thenbe needed.

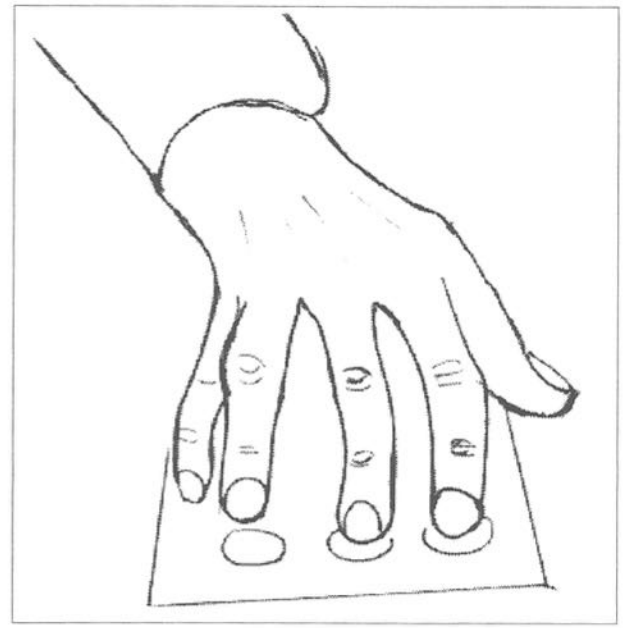


Fig 1 Three brass buttons are employed insulated from the metal box containing the electronics and battery. There is a speed control, an on/off switch, a reversing switch of the inputs and a volume control mounted on the box and not shown in the figure The middle finger rests on the middle button which is connected to earth When sending the forearm is rocked through a small angle so that the index or ring finger touch their discs.

The circuitry is shown in figure 2. the chip is a CA3240 dual operational amplifier, I used the 8 pin version. The two halves are wired in identical ways. If a disc is not touched the 10M resistor holds the non-inverting input a little above the inverting input as this is connected to a voltage divider across the supply; the output of the amplifier is thus high. When a finger touches its disc a minute current flows to the middle finger which rests on the middle disc at earth potential. The action depends on the skin being slightly moist but there is hardly ever any problem from excessive dryness.

I did not build the iambic circuitry; there are a number of alternative systems. I bought an inexpensive "Electronic Keyer Kit" from R. A. Kent (Engineers) 243 Carr

Lane, Tarlton, Preston, Lancs PR4 6BY, UK. Phone +44 (0)1772 814998. Construction was straight forward and the kit worked without difficulty. To enable the 3240 amplifiers to swing the inputs down I had to omit two resistors of the Kent circuit - R2 & R3, both 4.7 K, which tie the inputs of the kit to the 5 volt rail. This voltage, available from a regulator on the board, I used also to supply the small currents used for the operational amplifier circuits. The manufacturers specify a 12V supply, but mine works splendidly on 9 V from a PP3 battery. I made one other variation, by using a piezo-electric sounder connected between the output and earth the two speaker pins being connected together to enable current to reach the transistor providing the output.

Morse is a system which has been used successfully by patients with the "locked-in syndrome". They may have good intellectual capacity but be unable to write or speak. If, however, they can communicate by moving a muscle somewhere to operate a Morse system they can communicate with their carers, and may be able to control computers too. I think the system I have described may turn out to be useful for people with these problems. With strokes too it is the individual movements of the fingers which are normally the most severely affected. Movements of the forearm are often well preserved. This system should be useful for them too and for others with kindred disabilities. Anyone interested in such problems should look at the web page of "Morse2000". The URL is http://lucy.uwec.edu/Academic/Outreach/Morse2000/morse2000.html This organisation, run principally by Dr T. King at the University of Wisconsin-Eau Claire in the USA, is concerned with, and has much information about, appropriate systems for the use of Morse by the disabled.

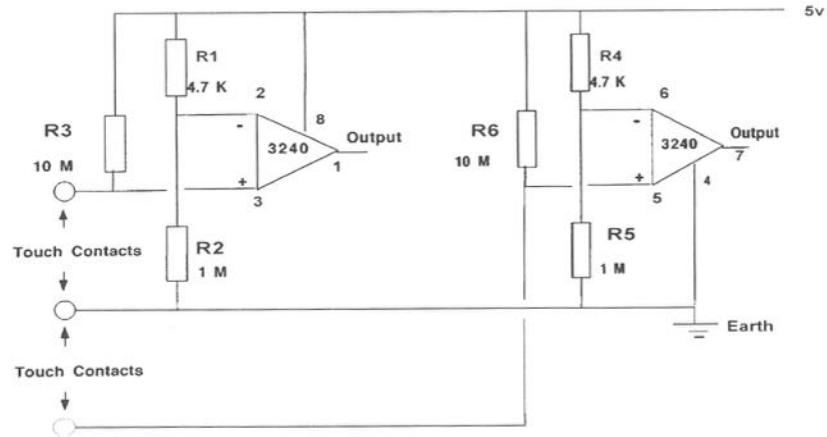


Fig 2. The two halves of the touch sensitive circuitry using the CA3240 dual operational amplifier. The current drain is very small.

[1] Walsh G., 1999 - Touch Sensitive Keyers - Radcom Vol 75 No 3 March 1999, pp. 28-29

The United States Navy Code

By Ivan S. Coggeshall
KA1AVG
(SK)

WHEN THE WRITER undertook this exercise, it was with the hope of dispelling some of the mystery and misinformation surrounding the use of the U.S. Navy Code by the United States Navy. In a measure he may have succeeded. But the date of discontinuance of the Telephotos system of four vertical lights using that code for night signalling remains unestablished, as do the keyboard layout and manipulations by which the system was controlled. Those features require further inquiry. There may be sources in Washington, including the Navy Memorial Museum. The presentation which follows is roughly chronological, 1844-1915.

Basic Codes Used in Telegraphy

The American Morse Code, devised by Samuel F.B. Morse and Alfred Vail and introduced commercially in 1844 in Morse's electric telegraph, was composed of timed sequences of dots, dashes and spaces, representing alphabetic letters, numerals and punctuation. When introduced soon after into Europe, the code was found to be inadequate to express diacritical variants - accented letters - needed to telegraph languages among the nations of Europe so, in 1851/2, a modified code - Continental Code, later known as International Morse - was adopted for use there.

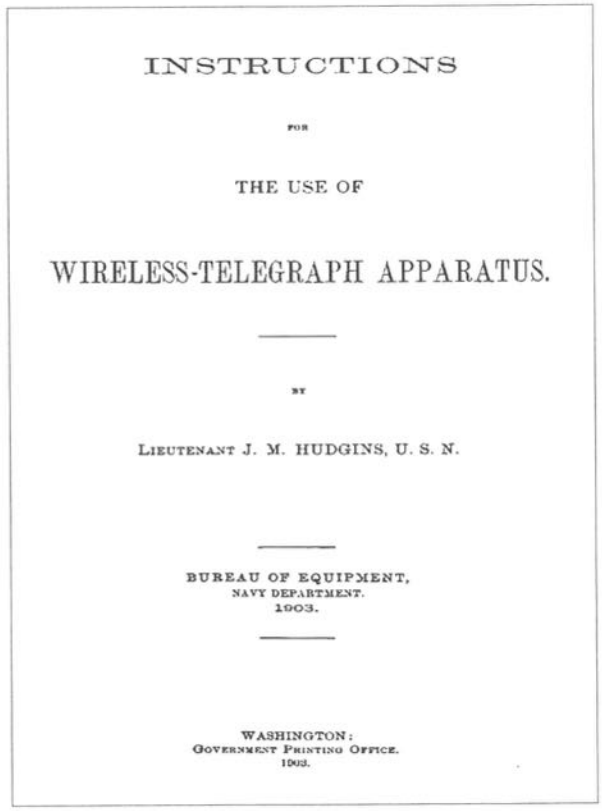
Use of Continental Code in Wig-Wag

Prior to the Civil War, 1860-65, the U.S. Army found Continental Code useful for signalling with a single flag held aloft on a staff. This was moved to the right for a "dot", to the left for a "dash" of the same time duration, and swept directly down in front and up again for a space between words or between groups of figures. The space between letters was a brief pause in the "aloft" position.

Original Myer Code in the Army

In 1860, Albert James Myer, an Army Officer, offered for adoption a wig-wag code which would require less work on the part of the signalman than Continental code because it was more accurately correlated with the frequency of occurrence of letters in English. His letters were designated by one to four elements; and for figures he used five elements:

A	22
B	2112
C	121
D	222
E	12
F	2221
G	2211
H	122
I	1
J	1122
K	2121
L	221
M	1221
N	11
O	21
P	1212
Q	1211
R	211
S	212
T	2
U	112
V	1222
W	1121
X	2122
Y	111
Z	2222
1	21112
2	12221
3	22122
4	22212
5	22221
6	12222
7	11222
8	11112
9	11211
0	22222



INSTRUCTIONS

FOR

THE USE OF

WIRELESS-TELEGRAPH APPARATUS.

BY

LIEUTENANT J. M. HUDGINS, U. S. N.

BUREAU OF EQUIPMENT,
NAVY DEPARTMENT.
1903.

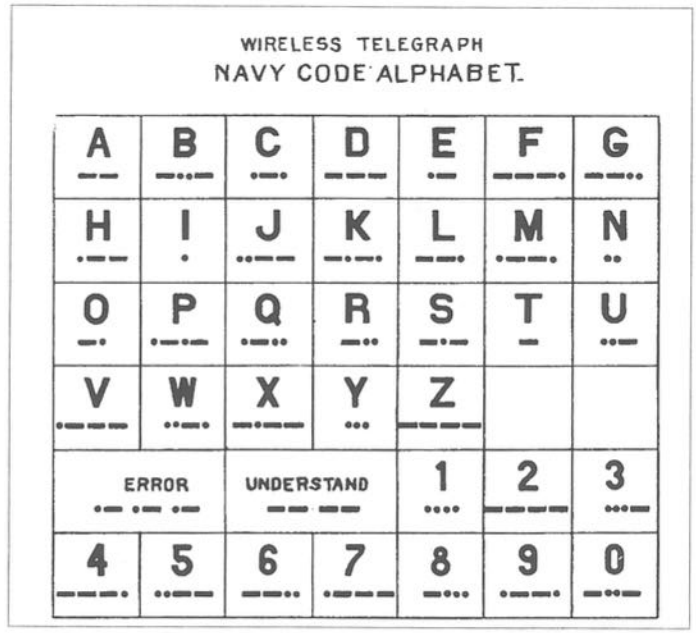
WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1903.

The 1-2 notation is more representative than dots and dashes for codes like wig-wag where the motions are of equal time duration. The dot-dash notation is more appropriate for codes such as Morse, where the dashes take two to three times as long to send as a dot.

Since the letters E T A O I N are preponderant in English, Myer, as can be seen, assigned to them a single element or two elements. S H R D L U C Y came next, and each of these was expressed by three elements. The remainder of the alphabetic letters were each assigned four elements, the maximum.

Myer's wig-wag code was used by the U.S. Army throughout the Civil War and afterwards. (A future article in MM will describe this application. Ed.) The Navy, with its flag-bags and semaphores did not use the Myer code in

any form at that time.



Blinker Lights in the Navy

In 1878, Lieutenant W.N. Wood, USN, introduced a "Morse Code blinker light signal" into the U.S. Navy for after-dark communication. This was no mean shipboard achievement, considering the embryonic stages of civilian dynamos and incandescent-filament electric lamps prior to 1882. (Annual Report of the Secretary of the Navy, 1878, p.157.)

There is a consensus in the literature that American Morse spaced letters were used initially. Later, the use of Continental Morse gained favor; but Myer Code was not used for these white blinker-lights.

Ardois System Used in U.S. Navy

In 1891, the Ardois System was introduced into some squadrons of the U.S. Navy (Annual Report of the Secretary of the Navy, 1892, p.131). Ardois, a French inventor, used a rotatable-disk transmitter to control the simultaneous display of vertically spaced incandescent lamps between yard-arm and deck. Red and white lamps at each of five clusters were so closely spaced as to appear, at a distance, to occupy the same five levels.

Sixty-two character indications could be selected, reading from bottom to top. Receivers on all ships had to learn the code in order to record the letters, numerals and other characters they saw. Senders did not select the required lamps by code but automatically by moving the index pointer of a rotatable disk to each desired character in turn. Manipulation of a handle, also mounted on the disk, then actuated pistons to make the proper coded electrical contacts for the lamps.

The Ardois code was arbitrary, bearing no relationship to American or Continental Morse or to the Myer Code. Examples were A=RWR (Red White Red), B=RWRW, D=RWRWR, H=RWW, O=RR, W=RRR, etc.

There were enough combinations to cover the alphabet, numerals, punctuation, and navy tactical signals as well. One of the latter was "Compass." Signalling of "Compass" would introduce secondary meanings to 32 consecutive characters on the disk for the purpose of boxing a 32-point compass to give ships' course directions.

Signals Repeated Back

The Ardois system was described briefly by Ensign A.P. Niblack in an article: "Signals for the Navy, Day, Night and Fog," in the Proceedings of the U.S. Naval Institute, Whole No. 58, 1891, p.253. He described it as one which caused five red or white lights, strung on a vertical cable, to be read from bottom to top.

In 1891 the practice was to have each separate signal (letter, numeral, etc) repeated back by all receiving ships before a second signal was originated. If, on account of eclipse of an optical character, the initiated signal could not be seen by an involved receiver, the missing signal could be "caught" by him in the process of being repeated back by a third ship.

Ardois Criticized

In 1892, a year later, Niblack was back in the Naval Institute "Proceedings", Whole No. 62, p.447, with a full-scale criticism of the Ardois system. Foremost among his objections to it was its mandatory use of five light levels, to accommodate which there were not enough feet of space between deck and yard-arm on many ships.

He felt that the number of light positions should be reduced to four, and for that reason the Ardois system should be scrapped, along with its "keyboard" which he considered unnecessarily complex.

Niblack proposed adapting the Myer 4-element code for the alphabet, and for the numerals he advocated the following:

1 - 1111
2 - 2222, same as Z
3 - 1112
4 - 2221, same as F
5 - 1122, same as J
6 - 2211, same as G
7 - 1222, same as V
8 - 2111
9 - 1221, same as M
0 - 2112, same as B

A number of influential U.S. Navy officers rallied in the "Proceedings" to support Niblack's criticism and proposals. In European countries, also, impetus was given to having lights on four levels with corresponding simplified codes. Among those were Sellner and Kasolowski (Italian), both tried out against the 5-level Ardois system.

Two Modes - Positive Identifier

The danger inherent in using the same signal to indicate either a letter or a numeral was obviated at a time and place unknown, in the interval 1892-1897, by applying two modes to the entire group of signals.

This was done by changing the source of voltage applied to the top lamp, be it red or white, from STEADY (denoting the alphabet mode) to PULSATING (denoting the numeric mode.)

Since the top lamp (reading DOWN was another of Niblack's proposals) appeared in all signals, its steady or pulsating state became a positive identifier of the mode being signalled. This made possible the safe use of the Niblack modification of the Myer code for double duty.

The writer has not been able to find an original reference to the pulsating top lamp. It was mentioned in a booklet by A.C. Gilbert, "Signal Engineering", of around 1920, and recognized as of great importance by my friend and correspondent in Connecticut, Donald K. deNeuf, retired President of Press Wireless and a historical authority in telecommunications.

Telephotos Supersedes Ardois in US Navy

We have to assume that Niblack and his associates came up with the new system to replace Ardois within the six years 1892-97. The modification of the Myer Code (as to its figures only) proposed by Niblack became "The U.S. Navy Code," and its application to night signalling took the official name of "Telephotos".

The development probably took place in the Bureau of Navigation, but in 1897, the year of the change-over from Ardois, responsibility for electrical signalling equipment in the Navy was transferred to the Bureau of Equipment.

The 1897 Annual Report of the Secretary of the Navy, p.200, notes the introduction of "the Telephotos system, similar to the Ardois, but having an improved keyboard." The 1898 Annual Report, p.310, reads "Telephotos night signal sets have been installed on board the Harvard, the Yale, Dixie, Yosemite, Topeka, Vixen, Buccaneer, Maple, and on such auxiliary ships as have sufficient height of mast, and have, in general, given satisfaction."

The year 1898 saw the Spanish-American War, from the sinking of the Maine at Havana (February 15), to the Battle of Manila Bay (May 1), and Santiago, Cuba (July 8), to the Treaty of Paris in December. This war may have seen Telephoto's only use in U.S. Navy action.

Some Personal Recollections

The writer, who was born in 1896, can attest to the system being in action in Newport Harbor in 1907, during the cruise of "The Great White Fleet" around the world. The winking of the (to him) mysterious red-and-white masthead lights was always a feature of battleships' visits to Newport.

From June 1908 to June 1912, at ages 11 to 15, he kept an amateur wireless log in which were included the American Morse and Continental Morse codes (which he learned by heart), and a "U.S. Navy Code", mis-expressed in dots and dashes, with a dot for Red and a dash for White.

He remembers that Navy Wireless (as did coastwise steamships and shore stations) used American Morse from before 1908 until it changed to Continental Morse on November 1, 1909, simultaneously with a change from two to three-letter station and ship calls. Thus the Torpedo Station at Newport on that date changed from PK (····· —·—) to NAF (—· · — ··—·).

Since the writer never heard any unreadable dot-dash wireless signals which might have been this mysterious "U.S. Navy Code", he gave it no thought: "must have been elsewhere in the Navy". His associate wireless amateur, Morris Kimber, didn't even enter the Navy Code in his log book during the 1908-1911 period, but did include an entry that "U.S. Navy Code is in use for mast-light signalling aboard ship."

During that same period, 1908-1911, the Telephotos system was using the U.S. Navy Code for night signalling in the following correct form:

Alphabetic Mode *(Top Light Steady)*

Letter:	E	T	A	O	I	N	S	H	R	D	L	U	C	Y	B	F	G	J	K	M	P	Q	V	W	X	Z	+
From Top:																											
I	R	W	W	W	R	R	W	R	W	W	W	R	R	R	W	W	W	R	W	R	R	R	R	R	W	W	W
I	W		W	R		R	R	W	R	W	W	R	W	R	R	W	W	R	R	W	W	W	W	R	R	W	W
III							W	W	R	W	R	W	R	R	R	W	R	W	W	W	R	R	W	W	W	W	R
IV															W	R	R	W	R	R	W	R	W	R	W	W	W

Numeric Mode *(Top Light Pulsating)*

Figure:	1	2	3	4	5	6	7	8	9	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	+	*	*
From Top:																											
I	r	w	r	w	r	w	r	w	r	w	r	w	r	r	w	w	r	r	r	r	w	w	w	w	w	w	r
II	R	W	R	W	R	W	W	R	W	R			R	W	R	W	R	R	W	W	R	R	W	W	W	R	W
III	R	W	R	W	W	R	W	R	W	R							R	W	R	W	R	W	R	W	R	W	R
IV	R	W	W	R	W	R	W	R	R	W															W	R	W

+ = available for space between words/groups in both modes
* = available for assignment

Wrong Guesses Confuse the Record

Donald McNicol, an authority on codes, wrote an article: "Telegraph Codes of the World", for Railroad Man's Magazine in December 1915 (some three years or more after the writer had put the code in his wireless log as described above). In the article, McNicol included the "U.S. Navy Code", letter for letter and numeral for numeral in the same way, substituting dots and dashes for Red and White lights.

But McNicol made a mistake in saying by way of explanation: "Until a few years ago, when the Continental code was adopted as a standard in the radio services of the United States Army and Navy, the Navy had a code of its own." This implied that the Navy used it as a "sound" code, in dots and dashes, later replaced by Continental. That it never was, nor could be. His error was probably "self-inflicted" by his use of dots and dashes to represent the code.

A lesser authority, "Hawkins Electricity", also 1915, compounded confusion

(1) by assigning —··— to both B and X as well as to 0; and (2) by stating "The Navy Code is now obsolete, being discontinued Nov. 16, 1912; the Navy at present uses the Morse." This implies the use of American Morse, but in 1915 the Navy was using Continental code, as noted above.

However, Hawkins may have been right about Telephotos' fading out in 1912. The writer has seen no alternative date mentioned, nor can he confirm it.

Another contributing factor to misunderstanding Telephotos and the U.S. Navy Code was an almost universal tendency of the man-ashore or the non-Navy writer to apply the terms "Ardois system", or "Ardois lights", generically, and over the years, to any display of vertically disposed red-and-white flashing lights.

Conclusion

Though the writer's study dispels some of the mystery about the U.S. Navy Code, it does not satisfy all curiosity. What was its speed in practice, in words or letters per minute? What was the nature of the keyboard controlling the Telephotos lights - ten buttons reached by five fingers on two hands, after the manner of the original Baudot operators in France? Did the receiver shout out the characters he saw, while a second man wrote them down and/or transmitted an acknowledgement or reply?

Seventy years of neglect since 1915, during which the system vanished into the past and its practitioners died, leaves us few ways to satisfy our curiosity. Do the practitioners' sons remember what their fathers taught them? Can answers be found in now out-dated encyclopaedias in English, French, or other languages, or in obscure publications? Can more of this puzzle be pieced together in those ways? The writer, for one, would like to know.

Middletown R.I.

The author was a retired vice-president of Western Union, and one time president of the Institute of Radio Engineers (which merged with the American Institute of Electrical Engineers in the early '60s to form the IEEE.) When he was 90 years old he circulated this paper to several friends and colleagues, including the late Don deNeuf WA1SPM, and gave MM permission to use it in whole or part. It has been slightly adapted for publication in MM but is substantially as originally written.

If any readers can provide further information on this intriguing subject, please contact MM. One interesting piece of information which has emerged since the paper was written is a copy of the "Wireless Telegraph Navy Code Alphabet" in dot-dash notation (see illustration) from "Instructions for the Use of Wireless-Telegraph Apparatus", by Lieutenant J.M. Hudgins, U.S.N., issued by the Bureau of Equipment, Navy Department, 1903. These instructions include copies of the American, Continental, and Navy Codes - all described as wireless telegraph codes - but it seems unlikely that all three would have been in use at the same time. If any reader has a complete copy, MM would appreciate photocopies of the text relating to the use of the Navy Code from this publication, or from any other publication of the period. Ed. ***MM***

Archeological Unwrapping of Key and Plug Assembly No. 9

By Chris Bisaillion

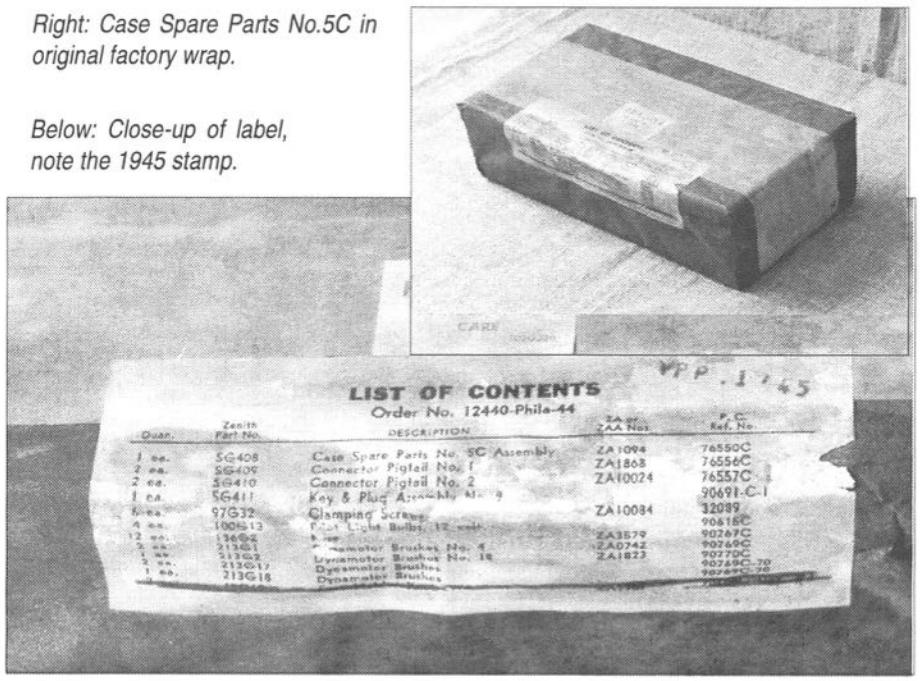
VE3CBK

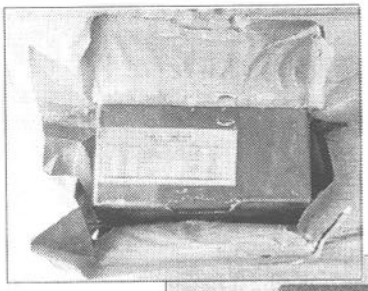
Photos by Barbara Bisaillion

BACK IN 1996 I received a very generous donation of Wireless Set No 19 equipment, all of U.S. manufacture and mostly in the original factory wrap. The Case Spare Parts No.5C contains a Key and Plug Assembly No.9 and here is one in the factory wrap! I was reluctant to tear open the packaging, but almost three years later I decided to take the plunge and document the unwrapping process. I reasoned that the Key and Plug Assembly No.9 was either the type made by J. H. Bunnel & Co. or the type made by Alden Products Co. (please see MM44 for more details). I proceeded with a stout heart.

Right: Case Spare Parts No.5C in original factory wrap.

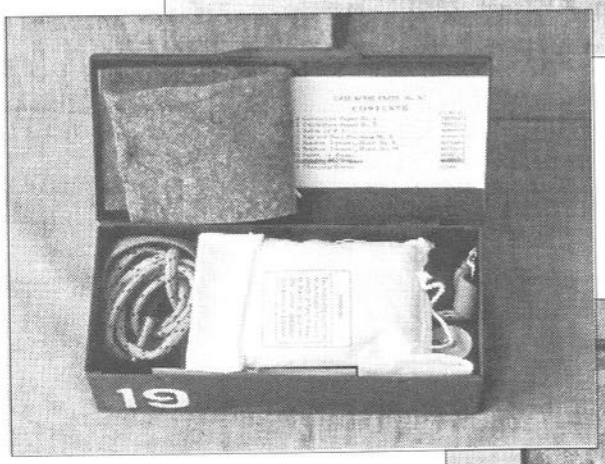
Below: Close-up of label, note the 1945 stamp.



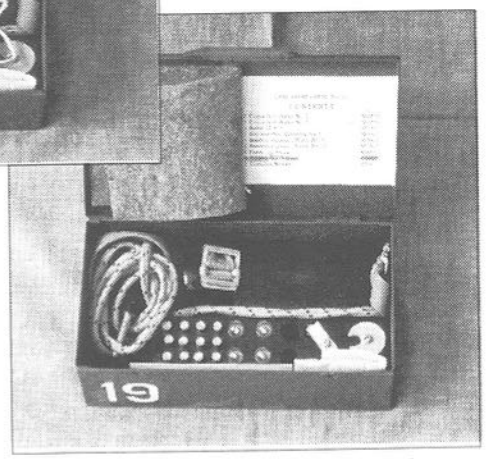


Left: Outside paper wrap removed to reveal wax sealed second layer of wrapping with another contents list.

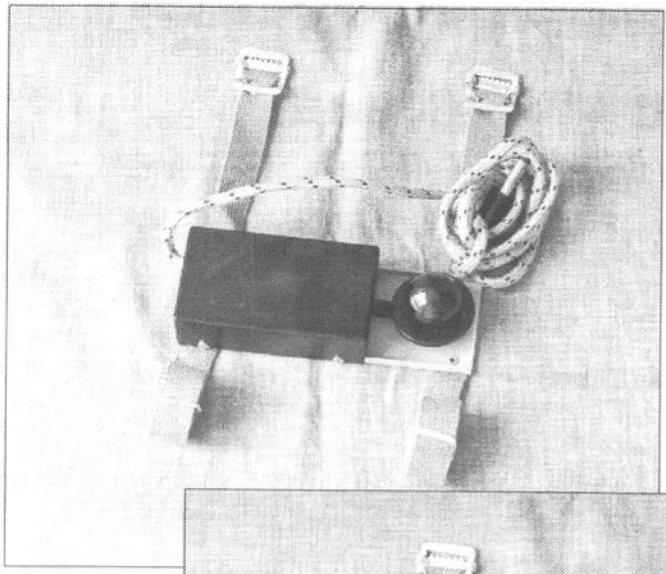
Below: Wax paper layer removed.



Left: Lid opened. Dessicant bag on top.

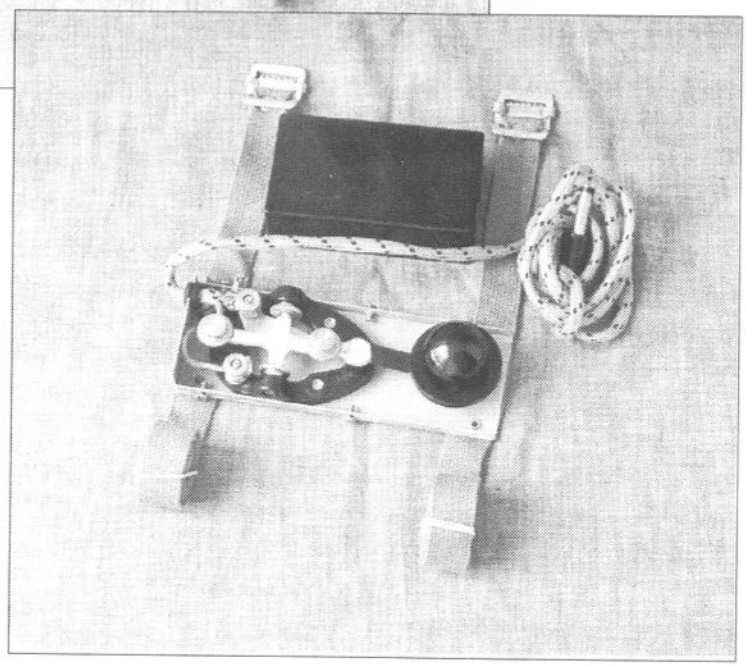


Right: Contents revealed. Now it is clear that it is an Alden Products Co. type Key & Plug Assembly No.9.



Left: Key & Plug Assembly No.9, made by Alden Products Co.

Below: Cover removed to reveal a modified J-137 . Note the lever set nuts moved internally to the frame.



It was quite exciting to realise that I was the next human being to see the contents of the package, after 54 years had elapsed, since someone at the factory (presumably Zenith) had packed and sealed the contents.

The Key & Plug Assembly No.9 was carefully placed back into the Case Spare Parts No.5C and the case placed on the top of my U.S. built Wireless Set No.19 Mark II.

What will I get to unwrap next Christmas ?

MM

Why? not β-Morse?

An Amusing Way to Preserve your Morse Code

By Jean-Yves Morin
VE2MHZ

NOWADAYS MORSE IS gradually waning out of civilian and military sectors also. The interest essential for its preservation lies mainly with a handful of radio amateurs and other enthusiasts due to their specialty or simple curiosity.

As you probably know, the actual International Morse Code Alphabet is international in every way as each Morse character has an equivalent letter in our Roman Alphabet as well as in Cyrillic, Greek, Arab, Hebrew and simplified Japanese. Consequently all of these alphabets may be written in dots and dashes.

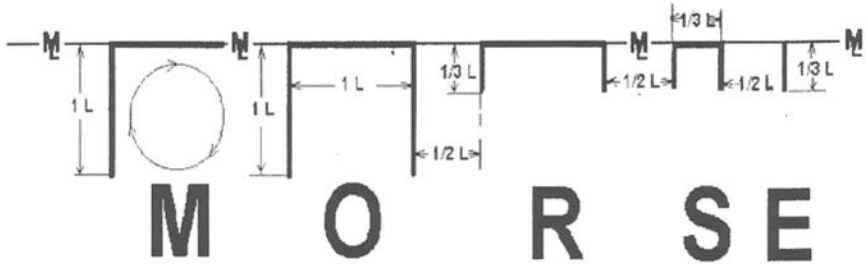
However, each character written in Morse Code bears no resemblence to its equivalent written letter, the former having a linear form and the latter a pictorial image. Keeping this in mind, why not form characters out of existing Morse alphabet? These characters shall retain all the qualities of both the conventional written letter and Morse code. Each character shall be simple and easy to read by these simple-to-abide-by rules :

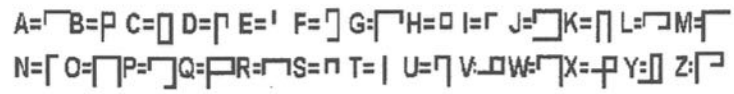
1) *Each letter shall be composed out of a maximum of four elements Each additional element shall turn at ninety degrees right from its precedecessor and this angle shall replace the former space between dots and dashes.*
2) *Only Letters of the Alphabet shall be used with the exception of signs or numbers which shall remain the same for a particular language.*
3) *Accents and tonic of a syllable (Spanish,Italian etc,.) remain the same as in the original language.*

Because of this, the new Morse characters, are well adapted to hand forming, contact printing such as typewriting, TTY or any

printer, or more usually to be read from a screen. Software is also feasible with a font which can applied to computers and microprocessors.

This alphabet should be interesting to use by Morse aficionados as it contributes to keeping Morse alive and well, at least in the mind of practitioners. Eventual use in computer software would permit its use in Radio Packet, RTTY, AMTOR, or simply to correspond or take notes at home. It is named β-Morse. The Greek letter -β- for Beta stands for the last part of the word Alphabet (bet) and the first part Alpha (α) of the same word has been rejected for clarity, hence the new word β-Morse or Beta-Morse.





A. A dash corresponds to a bar which is one (1) unit in length.
B. A dot corresponds to a bar which is one third (1/3) of a unit in length.
C. The distance between following letters corresponds to one half (½) of a unit in length.
D. Each element (dot or dash) of a letter, next and adjoined to another from left to right turns 90° clockwise.

1) Each letter is written having each of its elements to the right of the previous one and 90° to it.
2) The first written element is vertical rising straight from the left up to the Masterline
3) The second element (if present) is written on the Masterline towards the right.
4) The third element (if present) is vertical to the right going down from the Masterline
5) The fourth element (if present) is written towards the left under the Masterline
6) The top element of each letter (if present) is parallel to the Masterline
7) With the exception of accents in other languages no element of a letter is to be written on top and over the Masterline

MM

Wanted - Articles, Letters or Pictures on Morse Telegraphy - Contact MM

Showcase

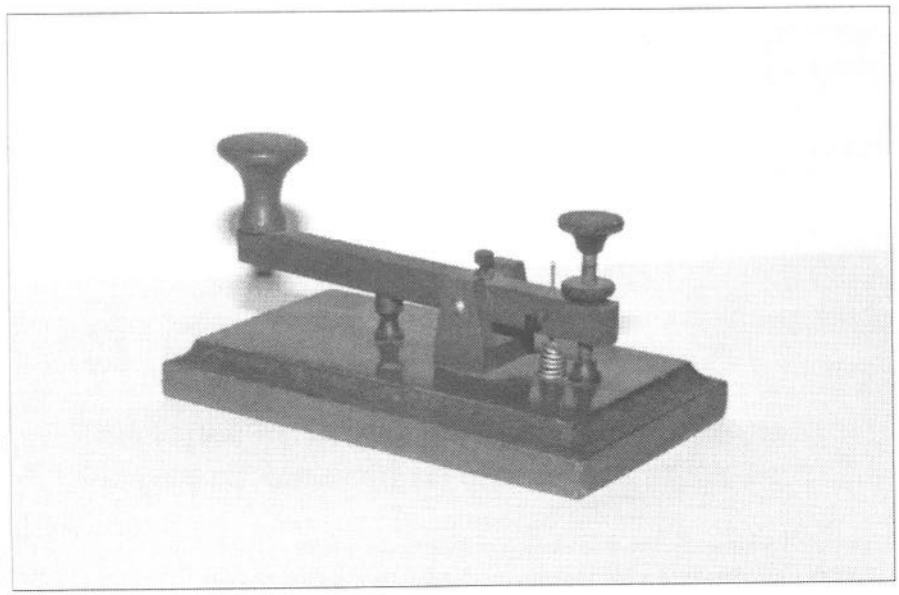
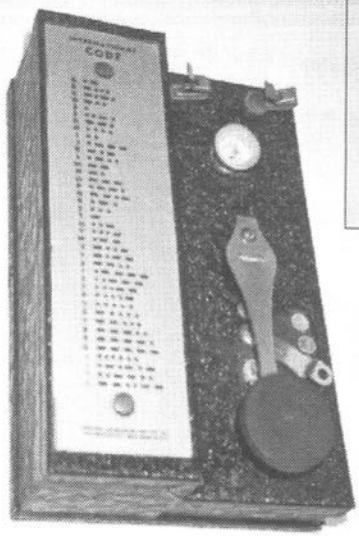


Photo: Ted Jones, G3EUE

This Italian key with a 4½ inch arm has two unusual features. The tension spring is mounted through the arm and held by a screw in the side and the knob is metal and cast as part of the arm

Photo/Collection: Jean Le Galudec

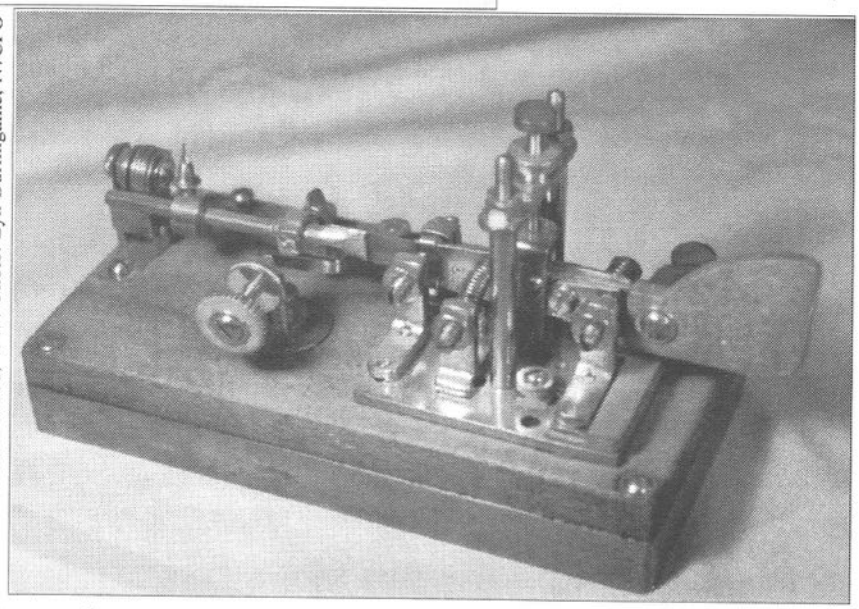
French Jardillier key with thigh strap, made in 1955.



Left & Above: Standard Radio-Telegraph Signal Set made by Strauss Mechanical Toy Co., NY. It can be switched for buzzer, light or"regular telegraph sounder" operation. It can be connected to another set for two-way practice. Instructions include a short list of Q-codes and other abbreviations.

Below: Bug key marked 'Elect. Dept. N.H.C. Co. (New Haven Clock Co.)

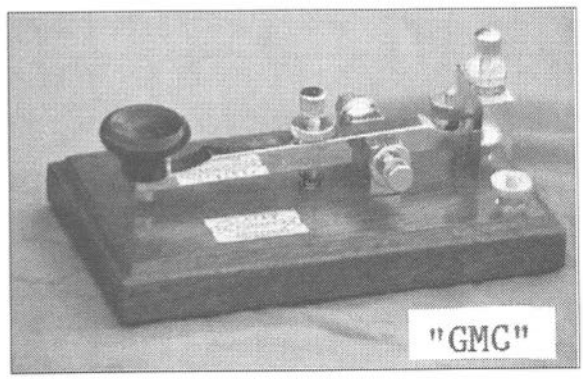
Photo/Collection: Wyn Davies



Collection: John Elwood, WW7 Photo: Lyn Burlingame, N7CFO

MM Competition

Win A Watson W-GMC Gold-Plated Morse Key!



Courtesy of Waters & Stanton plc, readers of MM are invited to enter a competition to win a Watson W-GMC straight key. Hand-made in Majorca, this handsome key, gold-plated on brass, is mounted on a sapele wooden base and is ideal for use or just for display.

To enter, answer the following questions about various aspects of Morse telegraphy, most of which have been mentioned in MM at one time or another, and use the entry form which accompanies this issue of the magazine. **It may be that no-one will be able to answer all the questions correctly, so send in an entry even if you don't know all the answers! DON'T BE SHY - GIVE IT A TRY!**

Please note that if you share the magazine with others extra copies will be required for each person entering the competition.

RULES

1. This competition is open to all readers of Morsum Magnificat.
2. Entries must be made on the entry form which accompanies every copy of MM64, July 1999. Photocopies, etc, will not be accepted.
3. Closing date for receipt of entries is 20 August, 1999.
4. The winning entry will be the one with the highest number of correct answers. In the event of tie, the highest scoring entries will be entered in a draw and the winner will be drawn from a hat.
5. The prize will be a Watson W-GMC Morse key, courtesy of Waters & Stanton, plc.
6. No correspondence can be entered into. The decision of the editor of Morsum Magnificat will be final.
7. The winner will be announced in MM65- September, 1999.

In Marconi's Footsteps or "Sparks along the Way"

By J. E. Packer

Hon. Curator
Porthcurno Museum of Submarine Telegraphy

WHEN STILL AT JUNIOR school I bought a curious electrical device from a junk shop for just a few shillings. I hardly knew what it was - but it was too intriguing to leave behind at the price. It was labelled "Grigg's Patent Conical Electro-Magnetic Machine - Plymouth - 1873" and consisted of a large coil in a conical cylinder cased in polished wood, a buzzer type interrupter, and a soft iron core that could be slid in and out of the cylinder, together with various hefty brass terminals. I later learned that it was a type of medical induction coil designed to give patients electric shocks whose strength was adjusted by the sliding core. The Victorians had great faith in shock treatment for nervous disorders, and any GP worth his brass name-plate would have his own portable shocking machine - either a magneto or a battery driven coil. I now realise my machine was a bargain, it would fetch from 50 to 100 pounds today at a scientific instrument auction. It was used to shock friends at school, and to produce small sparks that caused crackles on the domestic wireless. This latter discovery meant that if only Marconi hadn't already beaten me to it, I was poised to launch wireless on the world! Attachment to an aerial made the sparks receivable over several hundred yards.

Having "discovered" spark transmission for myself, I later of course learned that it was the first means of radio communication - and that it was now strictly ILLEGAL. The neighbours never realised what caused the interference on their radios, and I suppose prosecution of a ten year old boy may not inevitably have meant prison - but the aerial came down. Ten years later, and technically wiser, I spent some years on Ascension Island. In the middle of the tiny settlement was a little stone hut with a curved roof which the local St Helena men called the "ZBI cabin". It was then (in 1956) a carpenters shop, but the name intrigued me and I discovered that it had once been a ship-shore station for the island, in about 1912, using a spark transmitter and long wire aerial hung from two large wooden poles. ZBI was the call-sign. Later, abandoned in a dusty store, I found the remains of a rotary spark gap which presumably had come from the station, and in another store a very early 2-valve receiver, with a tubular "Billi" condenser

(vintage enthusiasts will know what this is) and large rotary stud-switched aerial inductance. Unfortunately baggage allowances did not let me bring these finds home, and when I returned to Ascension some years later they had been thrown away - the island's little museum did not then exist, which is where they should have gone.

Some miles inland was "Wireless Plain" - with more industrial archaeology in the shape of two tall "Eiffel Tower" shaped steel masts, and a small stone building whose internal walls were studded with large ceramic stand-off insulators. More research - to find that this was a Naval Wireless station dating from the Great War, equipped with spark. The original tubular steel masts had at some time been replaced by the "Eiffel towers" and their remains could be found all over the island cut and used as drainage culverts for the roads and tracks. These Naval stations had been erected during the 1914-18 War, in strategic places to give fleet coverage around the globe. Each was of course in touch with the Admiralty in London by the extensive submarine cable network, so that fleet orders could be sent to a British warship almost anywhere, long before the days of truly global wireless coverage at VLF.

I kept one of the china insulators for old time's sake, and today it supports the feed to the long wire aerial I use with a WWII TCS12 transmitter. Curious to think it started life helping to speed spark signals to warships.

My next direct encounter with spark was much more recent. As Hon. Curator of the Porthcurno museum I was in receipt of some duplicate or damaged items being disposed of by the Manchester Museum of Technology. The items included two spark transmitters - a trench set, and an airborne Sterling spark transmitter, both from the Great War. Both were very damaged and dirty; neither worked and it became obvious why Manchester thought them fit for disposal. The trench set had an open circuit coil - but by carefully dismantling the spark unit and lifting off the ebonite end plate I found that the thin secondary wire had parted company where it emerged from the coil itself, which was embedded in a red sealing compound and quite inaccessible. Luckily, enough of the wire emerged to connect a new lead-out, and lo and behold, bright hot sparks.

The Sterling set had apparently been dropped. The ebonite top and end

plates were each in several pieces - but all the pieces were there! It's wonderful what patience, strong resin glue, and a rub down with fine emery and a good polish can do. It now works fine on about eighty metres in what I hasten to add is a screened underground room unconnected to any outside aerial. The set had been designed for use in a spotter aircraft, the bearings of enemy gun positions being relayed to a ground crew equipped with crystal set Mark III It was strictly air to ground, there was no wireless "up-link'

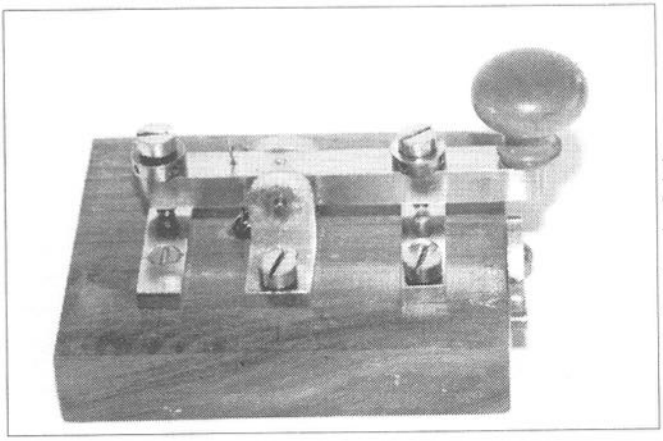
The Porthcurno museum also became involved in another spark station. On a Cornish cliff-top near the Lizard Lighthouse, mainland Britain's most southerly point, stands a little wooden building which is the world's oldest purpose-built wireless station. It was erected by Marconi in about 1900 or early 1901 as an experimental site from which signals transmitted from his main station at Poldhu could be measured and monitored. It was equipped with spark, and communicated with another Marconi station on the Isle of Wight, proving against the opinion of some "experts" of the day that this new-fangled wireless would go well beyond the horizon. This success no doubt prompted Marconi to attempt his transatlantic feat - crowned with success in December 1901. Of the Poldhu station little remains but a few mast bases and part of a tiled floor - making the "wireless hut" on the Lizard all the more important to industrial archaeologists. For this reason the site was recently purchased by the National Trust, who also own an optical telegraph station (flags and lamps) at Bass Point, a mere few hundred yards away. A photograph of the interior of the station, showing 10-inch induction coil, Leyden Jars etc. was obtained from the Marconi archives (See Inside Back Cover), and museum staff went to the hut (now empty) to see what they could find. After stripping off modern wallpaper to reveal the original wooden panelling, it became obvious from the photo that the original screw holes were still there, indicating precisely where each shelf and item had been fixed. This makes it possible to consider re-equipping the station with replica equipment to exactly match its original appearance. Museum staff and associates are quite able to build a replica station - even one that works to the extent of producing impressive sparks if required - but not of course radiating! Discussions with the National Trust are proceeding. It may be possible to erect a tall wooden aerial mast (the original mast base is still there) with a halyard so that it is easy to hoist a dipole and use a modern rig on special occasions such as International Marconi Day. Watch this space! ***MM***

Info Please!

Please send all information to the Editor, Morsum Magnificat so that readers can share the information

Right: Thought to be a German key used by Deutch Post. Info please.

Below: Unknown practice set in a large wooden box. Good quality brass key with both contacts under the bridge. No markings on the box. The buzzer is marked 'VUSONIC/ TDMK' and the lamp is marked 'U.E.Co./1928'



Photo/Collection: Jean Le Galudec

Photo/Collection: Jack Barker

Ted Jones was sent these photograhs from a friend in Italy, apparently used in multi-engined aircraft around 1938/40. The 5" arm is plastic covered with brass fittings.

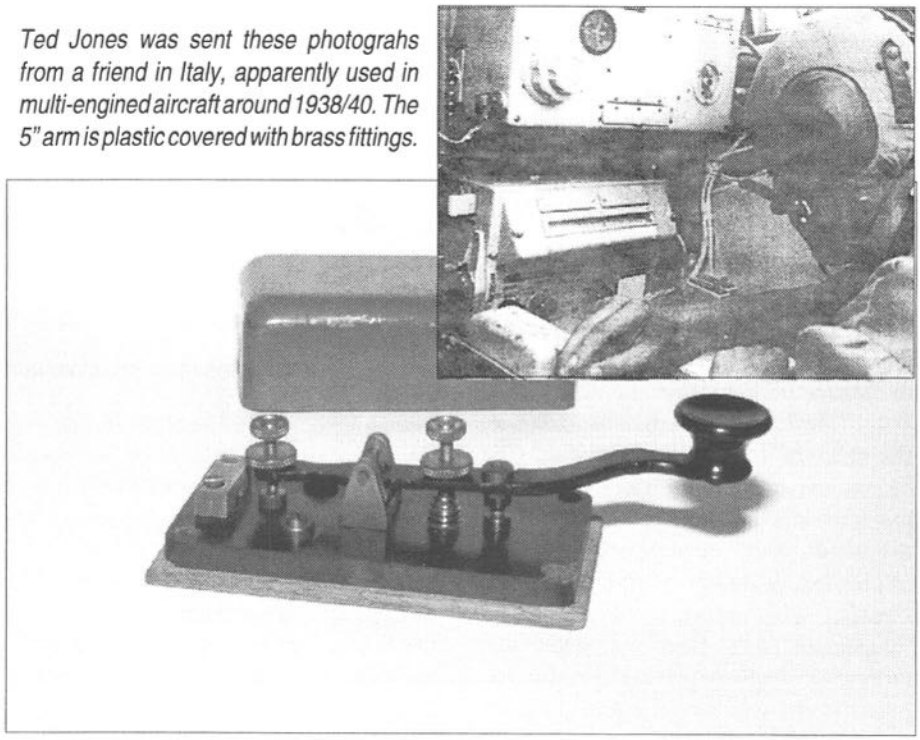
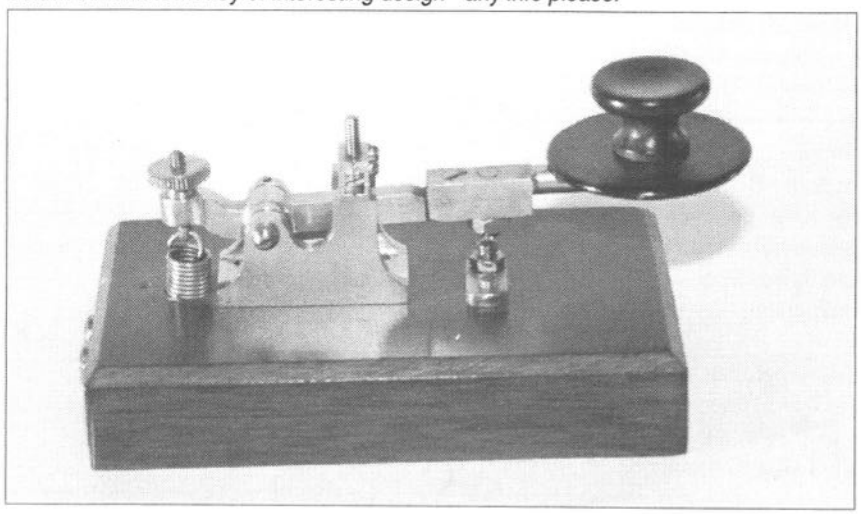


Photo: Ted Jones, G3EUE

It is mounted on a Paxolin type base with a spray painted metal cover. The insert shows one in use, oddly mounted on the left of the equipment.

Below: An unknown key of interesting design - any info please.



Photo/Collection: Jean Le Galudec

CW Notes With Character

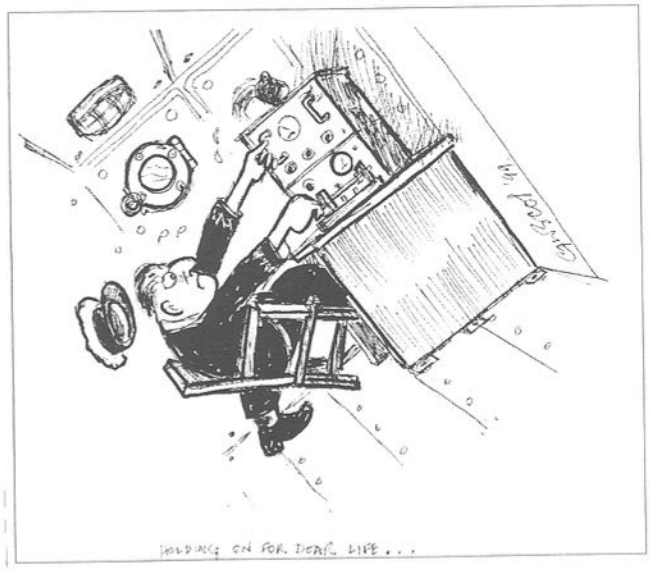
By George F. Franklin
WØAV

BACK IN THE THIRTIES, when I got started in ham radio, every CW signal had at least two, sometimes three, characteristics, not all of which could be described by using the RST system. Incidentally, RST then maxed out at 559, not 599 as now; easier to manage in those days.

First of all, there was the "fist", ie. the operator's manner of sending. The old pump handle straight key was pretty much the standard, and predominated on the bands. Next in popularity was the Vibroplex, commonly known as the "bug", with manual dashes and "automatic" dots. Here was where the individual sending style really came into play. There was the sea-going sparks sporting his "banana boat roll", with the exaggerated dash length. You could easily visualize "sparks" holding on for dear life in his shipboard shack as the vessel slowly listed from port to starboard. Once acquired, the BBR was usually retained even after sparks returned to dry land; it was a badge of distinction, so to speak.

Of lesser popularity, but even more distinctive, was the style of an operator using a classic "side swiper" key. The dots and dashes were both made manually by horizontal movement of the blade to which the finger grips were attached. The resulting CW, though eminently copiable, has to be heard to be appreciated as it defies word description. Yes, there are still a very few OT's on the bands using sideswipers, but they are most certainly a vanishing breed.

No discussion of fists would be



complete without mention of the so called "Lake Erie Swing", which originated with bug-using marine ops on ships plying the Great lakes. The LES was characterized by the very generous use of dots, usually much faster (relatively) than the dashes. It made for a somewhat fluttery, whimsical style of sending, not unpleasant to copy once one got the hang of it. This style was later adopted by many airline and police CW operators, with equal success.

Vying for importance with the operator's fist, there was the matter of his rig's CW "note", the T in the RST system. Here you encountered an endless variety of sounds, ranging from the raucous to the coveted PDC (Pure DC) to somewhat rare T9X (PDC crystal). There were many one-stage, "self-excited" rigs used on CW in those days, in spite of the dire FCC and Handbook warnings against coupling simple rigs of this type directly to the antenna. Many of us thought that as long as you used a "blocking capacitor" between the lead-in and the tap on the rig's output coil you were OK. After all, it wasn't direct coupling, was it? Simple keyed Hartley oscillators using the popular type 210 or 45 tubes were generally identifiable by their pronounced "chirp", usually caused by poor supply regulation. Someone has said that they sounded like a stepped-on frog; an apt description.

The TNT circuit (my favorite) was often a one-tube affair using a tuned plate tank circuit and an untuned grid coil, hence TNT (tuned, untuned). These rigs all too frequently emitted a rude sound which sounded like a nose being blown, or worse. A few made downright obscene sounds, probably because of inadequate power supply filtering. A TNT rig with poorly filtered, poorly regulated power supply was a frightful thing to hear on the bands. Strangely enough, the raunchier the note, the wider and more potent the offending signal seemed to become. One thing, though, it did attract attention from DX stations. Unfortunately, it frequently annoyed the FCC monitors, who responded with the fearsome "Green Ticket". Of course, there were the purists who always managed to emit a T9X signal. They were sort of an elite bunch,

however, who looked down upon the lowly users of Hartley and TNT rigs. They did stoop to respond to such offensive CW signals, but only if they originated off-shore and could be classified as DX.

And then there was the special breed of CW operator, usually a high-power fanatic in southern California who sported a crystal controlled KW+ rig the signal from which was modulated at 120 (or 100) cycles (there were very few Hertz around in those days). This resulted in a very distinctive note which seemed to cut through the pile-ups, assisted by the big jugs pumping out the KW's, of course. I was told that the modulation was the result of using "resonant filters" in the power supply in lieu of the typical brute-force filter capacitors, which cost big money at 5KV or so. These resonant filters did reduce the ripple significantly, usually just enough to meet the FCC criteria of the day. Sneaky but effective, wasn't it?

Oh, yes, there was the matter of S in RST, the signal strength factor. If you had sufficient power and a good antenna you could work the world on CW, even if the guy on the other end used a one-tube regenerative receiver and a pizmire transmitter. On the other hand, if your fist and/or your note were "distinctive" enough you could work plenty of stations, including DX, even if your signals weren't all that powerful. A good chirpy (birdlike or squishy) or buzz-saw signal could often cut right through a T9X pile-up, especially if assisted by a good BBR or LES.

I suppose some mention should be made of the atrocious frequency drifting of those classic CW rigs. Well, look at it this way. There was a fifty-fifty chance that one would drift away from the QRM. On the negative side, it was not unknown for a drifter to slide right out of the band and into outer darkness before the end of a long-winded transmission.

Ah, those were indeed the good old days of CW. Contrast those sounds with the sterile, electronically generated dots and dashes which dominate today's ham bands. No Character there! ***MM***

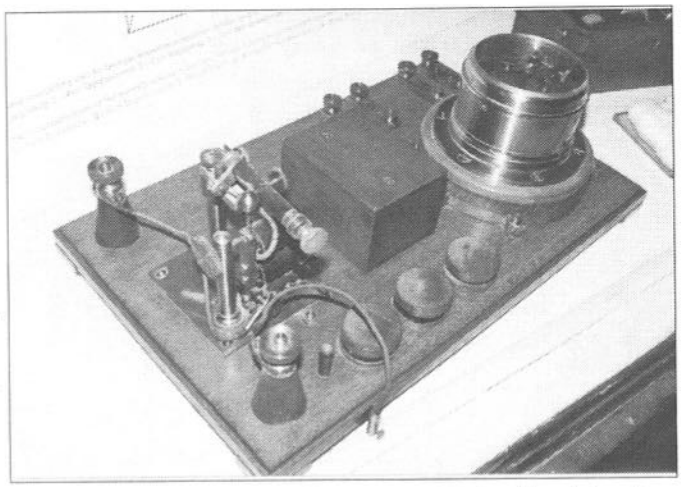
First Operational Use of Wireless Telegraphy

By Prof. Duncan Baker

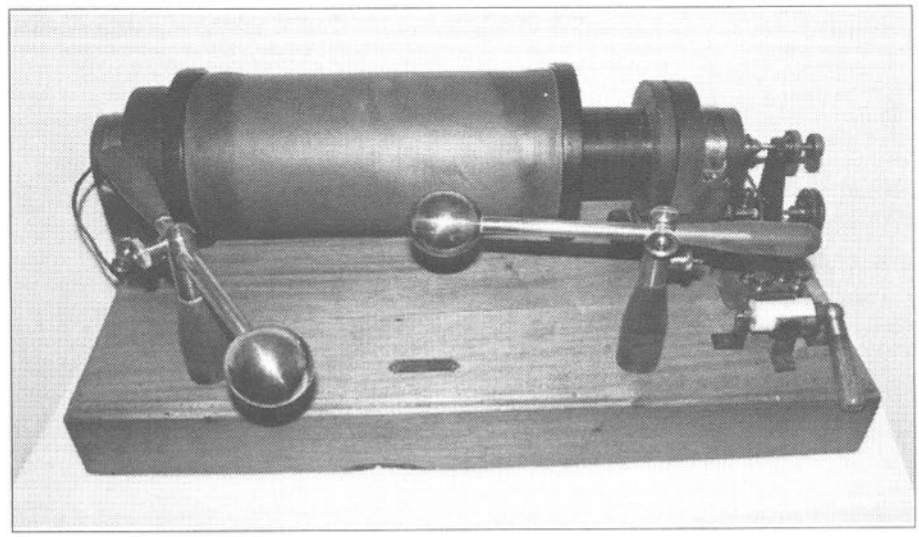
IT IS NOT GENERALLY appreciated that, as far as can be established, the first operational use of wireless telegraphy was in South Africa during the Anglo-Boer War of 1899-1902. This aspect of the early history of radio communications has been carefully researched and documented. On the strength of these findings, the South Africa Section of the IEEE, supported by the South African Institute for Electrical Engineers in terms of a Co-operation Agreement with the IEEE, nominated this event as an Historical Milestone. The IEEE History Committee supported the proposal, and the IEEE Executive Committee during its August 1998 meeting approved the nomination. The citation reads:

FIRST OPERATIONAL USE OF WIRELESS TELEGRAPHY

The first use of wireless telegraphy in the field occurred during the Anglo-Boer War (1899-1902). The British Army experimented with Marconi's system and the British Navy successfully used it for communication among naval vessels in Delagoa Bay, prompting further development of Marconi's wireless telegraph system for practical uses.

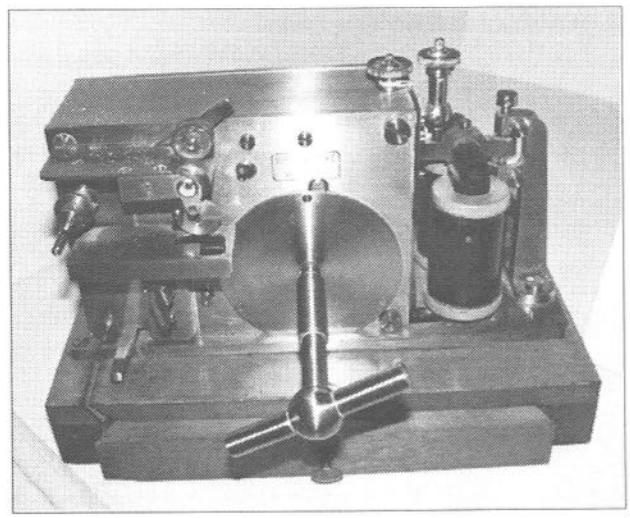


Siemens receiver - note the 'doorbell' hammer to reset the iron filings in the coherer



Restored Marconi Ruhmkorff coil spark transmitter

The Boer forces of the old Transvaal Republic ordered several wireless telegraph sets from Siemens in Germany. These arrived after the outbreak of hostilities, and were confiscated by the British on arrival in Cape Town. A refurbished Siemens set consisting of a Ruhmkorff coil for the transmitter, a receiver with coherer and Morse code relay, an inker for printing the Morse symbols on tape, and a battery are exhibited at the War Museum of the Boer Republics in Bloemfontein, South Africa.



Morse Inker for the Siemens receiver

Professor Baker, Dept. of Electrical and Electronic Engineering, University of Pretoria, is also editor of IEEE Region 8 News in which this article first appeared. The photographs are courtesy of The War Museum of the Boer Republics, Bloemfontein, South Africa.

Role of the Telegraph in the South African War 1899-1902

By Ted Jones
G3EUE

THE BRITISH ARMY MADE considerable use of telegraph and telephone communication during the South African War, 1899-1902. Ted Jones looks at a post-war official report describing the military operations, which included the setting up of a national telegraph system based on the postal telegraph system then operating in England.

When war was declared, the Postmaster-General in Cape Colony collected information as to the telegraph material available in his depots, and from various firms in Cape Town and Port Elizabeth. By the end of October, the main telegraph lines in Cape Colony had been severely damaged by the Boer forces and materials for their repair was sought from England.

When the Telegraph Division arrived from England on 12th November, it assumed responsibility for all telegraphic work within the "fighting area" (a somewhat vague term) or beyond the frontier. Civil staff were restricted to operations within the Colony, which was regarded as "safe", but on occasion they too worked in the fighting area.

For administrative purposes, the Army Telegraphs were treated as one of the signatories of the South African Telegraph Convention of 1866. This enabled them to retain as revenue all money received from private telegrams at military telegraph offices which were authorised to transmit paid work.

Heavy Traffic

The Telegraph Division comprised a headquarters and twelve offices, equipped with 60 miles of air line and 32 miles of cable. This included two complete sets of Wheatstone automatic fast speed instruments, with extra clerks to work them.

Reserve equipment, consisting of 195 miles of air line, 128 miles of cable and 32 offices arrived shortly after. Horses, mules and oxen were provided by the Remount and Transport Departments, although the oxen, normally used for baggage wagons, proved unsuitable for the work of the Telegraph Division.

The first task was to establish a telephone system at base with a switchboard and seven branches. As the

army advanced northwards it was found that the permanent telegraph lines had been severely damaged in many places, and air line was used to fill the gaps, although construction across the veldt was difficult over ground found to be mainly rock.

Traffic was heavy and the Wheatstone equipment was in full use. At one stage in the advance use was made of the permanent line by tee-ing in a vibrator.

March to Bloemfontein

The report details the many telegraphic activities undertaken in various parts of the country where a regular army was endeavouring to deal with an enemy comprised primarily of irregular troops. For example, sections of the Telegraph Division joined Lord Roberts' march to Bloemfontein, equipped with 100 miles of air line and 70 miles of cable carried in ten buck wagons.

The first advance, into Kimberley, covered 45 miles and was followed all the way by cable. This worked well until crossed by the fleeing Boers who cut great pieces out of it, some of which were found on prisoners who had kept them as souvenirs.

Up to that time, the Headquarters office had been working with double current duplex equipment. Two other centres were kept open as linemen's stations, coming in periodically with double current simplex. As the traffic was particularly heavy, a quadruplex set was installed but the air line sections created considerable problems. This was partly due to lightning strikes, but mainly to the reckless driving of provision convoys (fouling the wires). In due course Bloemfontein was entered and the Postal and Railway Telegraph offices seized.

Siege of Ladysmith

In a number of areas, British troops were able to make use of existing telegraph lines which had not been cut despite passing through Boer controlled territory. It was not considered advisable to send hand-sent traffic over these lines, which could be read when tapped, but this was not a problem when high speed Wheatstone apparatus was used.

Communication played an important part during the siege of Ladysmith, mainly by telephone which was linked to the many defence points around the town. Considerable use was made of the many "phonopores" found in the town, but they gave trouble and were generally replaced by the vibrating telegraphs.

Experiments were carried out trying to communicate with the outside world, using wireless telegraphy and the broken railway wires, but without success. A large parabolic mirror, eight feet in diameter, was also constructed, using a wooden frame and bright metal sheets, in the hope that flash signals on the clouds might succeed. Incandescent lamps were also tried, again without success.

Railway Blockhouses

Blockhouses were used for defence purposes at the beginning of 1901. Previously, they had been constructed to guard particularly vulnerable points on the railway, such as bridges. In that year it was decided to

protect the railways more systematically by constructing a continuous chain along their entire length.

Eventually blockhouses were built every 1,000 yards, and this proved so successful that telephone/telegraph lines were built across the open veldt. Every second or third blockhouse had telephones while virtually all lines were also equipped with telegraph offices.

All this, plus the military 'drives', led to the defeat of the Boers. In brief, the following figures indicate the extent to which the British Army relied upon telephone and telegraph communication during the campaign:

Blockhouse lines

Colony	Miles of wire	Telegraph offices	Telephones
Transvaal	4,413	95	823
Orange River	2,343	63	586
Cape	2,513	11	499
Natal	92	—	37
Total	9,361	169	1,945

Comprehensive System

Until the Army entered the Orange Free State in May 1900, the army telegraphs had worked a small system of its own in Cape Colony. Thereafter, the system developed rapidly until it covered all the telegraphs of the conquered States, amounting to 3,378 miles of poles and 9,395 miles of wire belonging to the late republics.

The whole country was divided into administrative areas, and there was considerable interlacing of services by the Postmaster-General and the Army Telegraphs. The organisation was intended to approach as nearly as possible that of the postal telegraphs in England.

At the cessation of hostilities the following equipment and personnel were engaged in the telegraph service:

Instruments		*Staff*	
Wheatstone	9	Inspectors	18
Quadruplex	6	Linemen	293
Duplex	25	Foremen and	
Simplex	288	Wiremen	155
Vibrators	88	Natives	643
Telephones	3564	Telegraphists	691
Phonopores	17	Miscellaneous	329

Army Telegraphs Costed

The total amount of traffic dealt with by the Army Telegraphs exceeded 13,000,000 operations, some of which were of inordinate length (eg, 6,000 words), with a very large proportion in the order of 300 to 400 words long. Despite regular drafts of personnel from England there was never more than 691 operators to work 504 instruments, many of which worked continuously, day and night.

The total amount of wire laid during the campaign totalled:

Air lines: (100 lines, longest 125 miles, plus numerous spurs) - 2,191 miles
Cable: (220 lines, longest 105 miles) - 3,749 miles
Blockhouse lines : 9,361 miles
New wire on existing poles: 1,146 miles
Telephone exchanges : 1,789 miles
Total: 18,236 miles

In addition, 3,378 miles of permanent poles and 9,395 miles of wire were taken over and restored to working order. The report includes detailed maps of all the lines constructed or renovated during the campaign.

At the end of the war, a financial statement was prepared to show the cost to the public of the telegraph and telephone services provided by the Army Telegraphs. This showed the net cost of telegraphing approximately 150 million words to be £233,390.00 or one third of a penny (old money) per word.

Glossary

Air lines: Telegraph wires strung on poles. These were frequently cut by the Boers.
Cable: Telegraph wires laid on the ground, usually on the surface. On one occasion communication was maintained despite a bush fire which stripped off the insulation. Another time, cable was replaced by several miles of barbed wire. A particular hazard was the cutting of the cable by convoys driving over it.
Blockhouse lines: Linked the railway blockhouses by telephone/telegraph. They appear to have been above ground, as they were frequently damaged by gunfire from the blockhouses.
Phonopore: Equipment which allowed simultaneous telephone and telegraph traffic to take place on one line.
Vibrator: The "vibrating sounder", an early Morse buzzer signalling instrument later used extensively by the British Army, see MM26, p.12 and MM61, p.14.

Reference: History of the Telegraph Operations during the War in South Africa, 1899-1902. Author, Lt-Col. R.L. Hippisley, C.B., R.E., Director of Telegraphs, South Africa Field Force. Published by HMSO, 1903. ***MM***

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

Maritime Radio Month, Portishead and Coast Station Events

As some readers will know the Maritime Radio Month, Portishead and Coast Station amateur radio events were a great success and I am now very busy with the awards and QSL cards. If I have an email address to which to reply, I also acknowledge receipt of award requests.

I had one from Greece and having sent an acknowledgement received the following reply which we should all find very encouraging . The letter reads:

"Thank you very much for your reply. It was a great honour for me to work these stations and to have participated a little in the end of an era. I look forward to receiving the award and hope to have the pleasure of meeting you on the air in the future, to have a QSO with a Radio Officer.

For us, the young hams, CW is twice as important. It is the most beautiful mode and is also a part of history. I feel it is our duty to preserve its history and to teach future generations of radio amateurs about the important role CW has played in telecommunications.

Anyway for most of us, the new kids here in Greece, CW is a part of our hearts and the key is a piece of our hand.

All the best de *SV1EDY, Apostolos Bourousis*"

David Barlow
Radio Officers Association

Morse Code Indispensable to Aviation?

I read with interest Mario Gasparovic, VE3HVY's letter (December TCA) about Morse code being indispensable to aviation. Working in the navigational aids field, I must point out unofficially that contrary to the statement made by Mr Gasparovic voice identification of navaids is possible but it is not done.

Wanted - articles and tips on making and restoring keys - contact MM

There are provisions in the equipment to have a voice ident. but it is easier to maintain a Morse code ident. A diode array is used to generate the correct ident.

As far as pilots having to know the code we now use a straight tone when a facility is on the air on test before it is commissioned. Previously the word TEST was used but it was found that pilots were hearing a number of dots and dashes and assumed the facility was safe to use. Also there have been instances where a VHF Omnidirectional Range (VOR) instead of an Instrument Landing System (ILS) was tuned in, both having similar idents - the VOR starting with a Y and the ILS starting with an I. Fortunately other aircraft systems alerted the crew to nearby terrain and a crash was avoided.

So Mario, I wouldn't sit back too relaxed. I would just hope that the aircrew have taken the time to properly identify the ident.

Mark Boyer, VE3MJB
Kanata, Ontario, Canada

(From "The Canadian Amateur", May/June 1999. It also refers to the same letter in MM63 - Ed)

MEGS QRS Skeds

Readers are reminded that the Morse Enthusiasts Group Scotland (MEGS) holds regular QRS skeds each Monday and Thursday from 7 to 9 p.m local time around 3.530 MHz, and all are welcome. Look out for its unique callsign - GMØRSE. MEGS exists to encourage the use of Morse, especially by newcomers. For further information contact Mr. G. M. Allan, Secretary, MEGS, 22 Tynwald Ave., Rutherglen, Glasgow G73 4RN, Scotland.

Locating Zeppelins

The Shore Wireless Services of the Royal Navy had a DF station at Hunstanton which located approaching Zeppelins in WWI. As the Zeppelins would hardly be working traffic, was the DF done on the ignition spark train from their motors?

This question has always intrigued me. They are believed to have listened on a wavelength of about 6 metres (??). The Commanding Officer of the Station (Russell-Clarke) was a founder member of the Wireless Society of London.

Jim Richards, GØOMI
Newcastle-upon-Tyne

Phillips Code 1975 Revision

With reference to Tony Smith's article "Walter Phillips and the Phillips Code", in MM61, there was a further reprinting of the Phillips code in 1975 sponsored by the Toledo Morse Telegraph Club "as a service to the fraternity of former press telegraph operators".

Priced at $5.50, this was a reprint of the 1925 edition, with the addition of various other codes and signals that were once widely used. These included such abbreviations as Acf - Aircraft; Fhtr - Fighter; Kaq - King and Queen; Kmsn - Communism; Prr - President Roosevelt; Rdo - Radio; Trpdo - Torpedo; and Zpn - Zeppelin.

A list of original numbered wire

signals was also added, including the well-known 73, 88, and the lesser-known 134 - "who is at the key?"

A list of Service and Traffic Department messages contained abbreviations such as Gba - Get better address, Nsa - No such address, and Rp - reply paid; while the Market Supplement from the 1909 edition of the Code included examples such as Aobfwos - Absence of business for want of stock; Damu - Demand dull & market unsettled; Fbabnd - Full prices asked but no demand; and Mopfac - Market opened firmer but fell at close.

John N. Elwood WW7P
Phoenix, Arizona, USA

Restoring Keys - Black Phenolic

A member of FISTS was looking for "black plastic" like the type used for the base of the J-38 key. I believe that it is ¼ inch phenolic. A local woodworking company sells all kinds of odd materials and they have 'Phenolic (black)' in their catalogue. I have confirmed that they can ship this material for an international order and I thought MM readers might be interested in this material for restoration projects. The company is: Lee Valley Tools Ltd., 1090 Morrison Drive, Ottawa, Ontario K2H 1C2, Canada. Phone 1-800-267-8767 or FAX 1-800-668-1807. Visa & Mastercard taken.

Chris Bisaillion, VE3CBK
Kanata, Ontario, Canada

Early Amateur Wireless Station in MM62

I notice inside the back cover of MM62 you ask about the source of the amateur wireless station picture. I used the same picture in the front of my book, "Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations" (p3) and it came from - " Hawkins Electrical Guide. No 8", 1917. page 2,328. These are a set of 10 volumes on electrical subjects. I have six of them. Number 8 deals with telegraph, telephone, wireless and other items etc.

The one shown in MM62 comes from a different edition as the layout of the text is different to mine. Looks as though it may be earlier by the style.

Hawkins were bought out by Audel & Co, New York who published many technical books over many years, mostly self-teaching series on many subjects. I have several on Marine, Diesel, Petrol, Boilers, etc., over the years. Hawkins was probably an earlier publisher bought out by Audel who continued the name.

John Alcorn
VK2JWA

(Readers interested in obtaining a copy of John's book, "Radiotelegraph and Radiotelephone Codes. Prowords and Abbreviations", should contact him at 33 Spring Street, Lismore, NSW 2480, Australia. e-mail: jalcorn@nor.com.au - Ed)

Morse Examiners Weekend Well Done!

Well done to all the operators on the Morse Examiners 13th. Anniversary Weekend, especially the one who was using a straight key, (as I always do - never can get used to these new-fangled paddle things!). Its a pity I couldn't work him before he had to close and cool off his worn fingers. I think that the use of the three letter county or city suffix gives a better indication of the general location, rather than the two letter postal codes now used for contests. What I do find disappointing is the sharp practice of a few "Big Signal" amateurs who insist on calling in before a QSO has finished, after all, this isn't a No Holds Barred Contest, is it?

Remember, Manners Maketh the Op.

Guy R Warburton, GDØLQE
Isle of Man

Same Key?

Is the International marine Radio key shown in MM62, February 1999 colour insert the same as N.S.N 5805-99-580-8550 except for a different case, DPST toggle switch and terminal boards?

John N. Elwood, WW7P
Phoenix, Arizona

Restoration and Recollections

In the wake of the news about the impending demise of commercial Morse in North America I write to the faithful to report on our progress in preserving a little bit of that history.

Perhaps you will remember that Tom Horsfall, WA6OPE, and I have been laboring in the basement restoration room of the San Francisco Maritime Museum every Sunday for many months. The object of our affections is a 1943 Radiomarine 4U radio console taken whole from the radio room of a Victory ship in the "mothball fleet" north of San Francisco.

When finished the console will be placed in a replica of a Victory ship radio room that will be open to public inspection as part of a large, permanent display on maritime radio communications.

I finished the HF receiver last weekend and slid it into place in the panel below the HF transmitter that I completed some weeks ago. Our work is not a full restoration - the museum will not allow repainting or anything that might mar the historic fabric of the exhibit. The goal is fully operational status for everything from the auto alarm to the emergency

crystal set. The HF set will be used on the amateur bands and we hope to accept traffic from the public for filing via the National Traffic System - in a re-creation of the service provided by a real ship's radio room.

We fired up the main MG set the other weekend. This runs on 120VDC and provides HV and filament voltage for both the HF and MF transmitters. For the first time in at least 35 years we sent real electrons coursing through the veins of the old girl. She shuddered for a moment and then the meters came alive. We adjusted the rheostat on the field of the HV winding and the voltage came up.. and up.. to the full 1400V. Not an arc or a spark, just glowing twin 813s. I keyed it with the switch on the panel. The MG set grunted at that but carried on. We found grid drive on one meter and a dip on another. And the 300W light bulb across the antenna terminals began to glow. "No problem," the transmitter seemed to say. "You want RF, you got RF... what's the big deal?" It was a big deal to us but we tried to not let on.

We've been working on this thing for many months now. We know it personally. And Tom and I work very well together. Sometimes there's lots of chatter and sometimes there's silence as we go about our work. And sometimes something else happens. Sometimes one of us stops and just stares at the panel, at the meters and the tune-up chart composed by some long gone radioman. And when one of us does that the other knows that pictures are beginning to form in his partner's mind. Pictures of the guys who must have sat in front of this very panel over the years, sweating or freezing as the latitude demanded, wearing the 'phones' well forward like a real radioman does, copying the weather on a clattering mill, straining to hear any weak signal that might pipe up during the silent period, writing NIL in the log except for that one time when a real SOS caused him to suddenly sit up straight in his seat in disbelief. The other one knows that these pictures are forming with frightening reality.

These men and the occasional woman were heroes but didn't know it. For every surly heavy drinker there were five who took pride in their work but said little about it. For every lazy shirker there were ten who did what was required of them and more without complaint. All of them knew it might eventually come to them to stay at the key as the water rose and the ship's plant failed and the only light was the 12V bulb over the emergency transmitter. None of them, shirker and drunkard included, would leave that key until ordered. And even then they'd lock it down before taking to boats - not forgetting to drag along the hand cranked lifeboat transmitter - to give the rescue ships a 500kc. signal to DF on.

"Hey, bud, you gonna' stare at that thing all day or you gonna' finish polishing that commutator?"

"Huh?"

"I said, are you gonna'..."

"Yeah, yeah, I heard you... So did you hear the one about that op. on the run to Java back in '49? The guys said he had a fist that sounded like he wuz beating two spoons together. So anyway..."

Richard Dillman, W6AWO
San Francisco

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FOR SALE OR TRADE: About 15 bugs, 30 keys, and a large selection of sounders, relays, and KOB's. Brass keys, sounders, and relays are $50 ea. KOB's are $75. SASE for list. Dave Pennes WA3LKN; 4607-C Santa Cruz Drive; Indianapolis, IN 46268-5354; (317) 471-9605; e-mail: dpennes@hotmail.com.

KEY SWAPPING: I have 2 different Air Ministry (WWII) lighting control boxes (each has dual keys), namely, 5C/3023 & 5C/3108 which were used on TBR (Torpedo-Bomber-Reconnaissance) and ABR (Amphibious Bomber-Reconnaissance) aircrafts respectively, for swapping with vintageBritish telegraph keys. Raymond Lee, VR2UW, P O Box 62316, Kwun Tong Post Office, Hong Kong.
E-mail: VR2UW@netvigator.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.

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Tel. +32.2.356 05 56 (home: after 8 pm my local time) or office: +32.16.38 27 21 or e-mail: fovabe@telindus.be

WANTED: MARCONI MARINE Alert Rx, Seaguard A/A Rx, Reliance Tx,"Mariner" magazines 1971-end, NSWS & etc. Bruce Morris, 62 Gerllan, Tywyn, LL36 9DE, Wales, UK.
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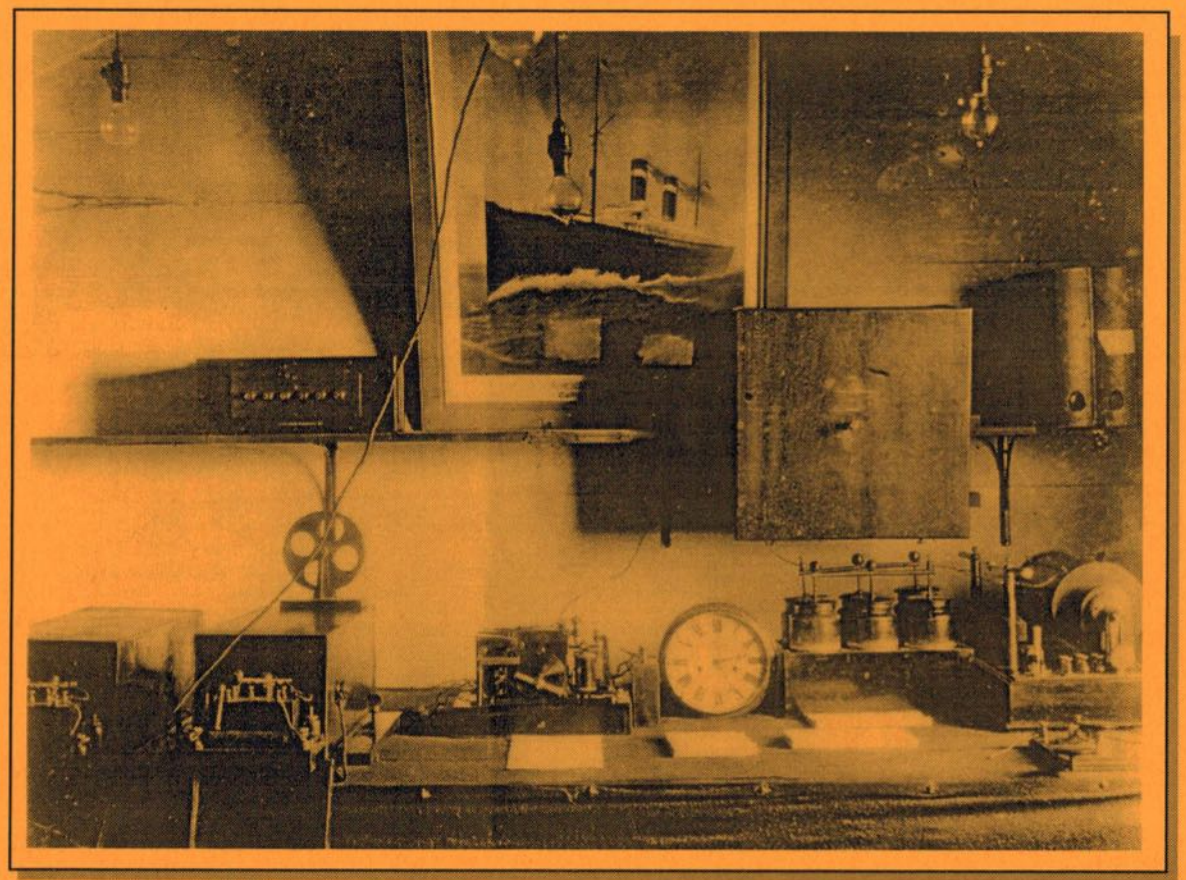
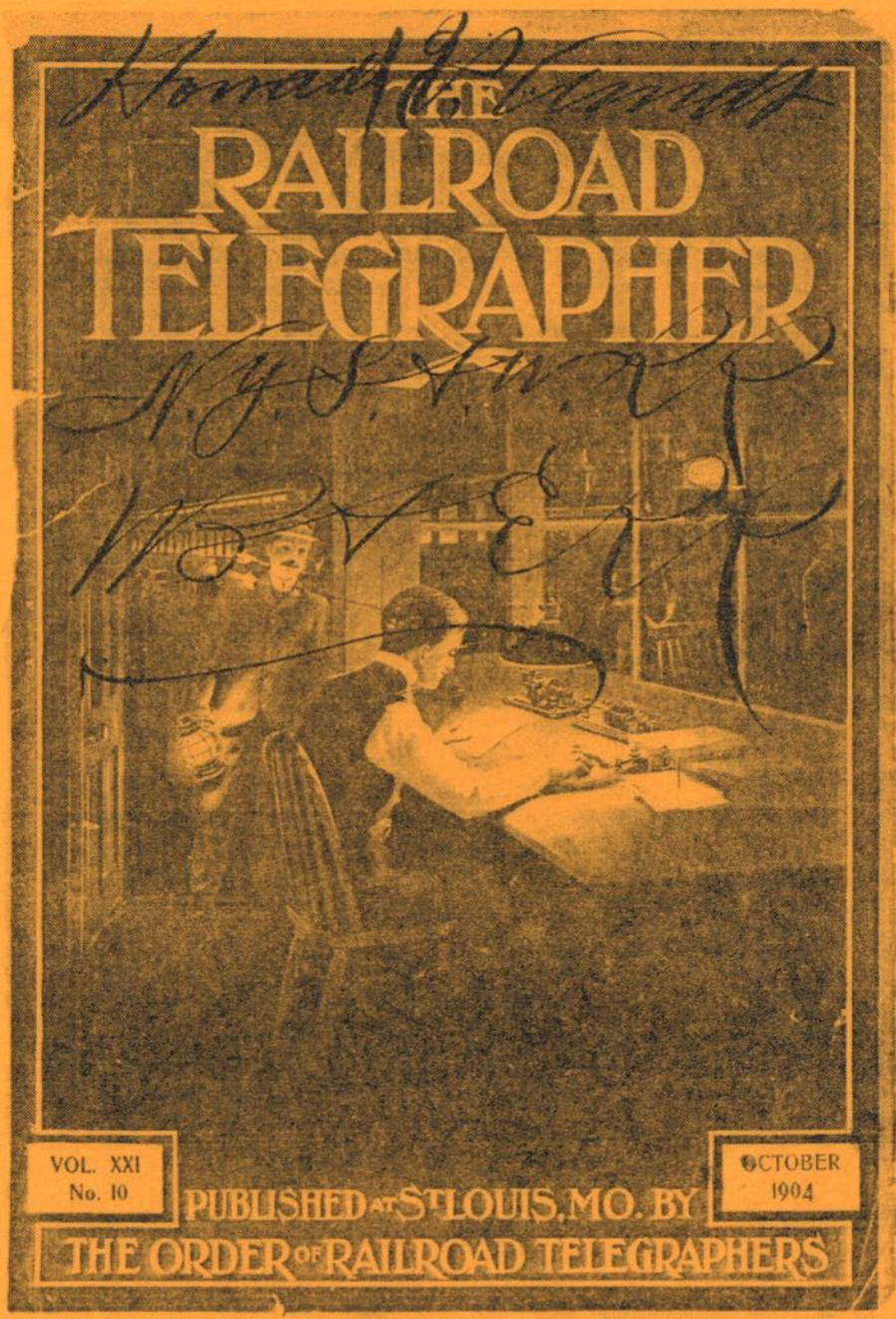


Interior view of the world's first purpose-built radio station owned and run by Marconi's Wireless Telegraph Co. Ltd. located on The Lizard, Cornwall, England. This picture was taken early in the century. Note the key, a Marconi Manipulator with side lever. - See the article "In Marconi's Footsteps" inside. (Courtesy of Porthcurno Museum of Submarine Telegraphy - John Packer, Hon. Curator)

THE RAILROAD TELEGRAPHER



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