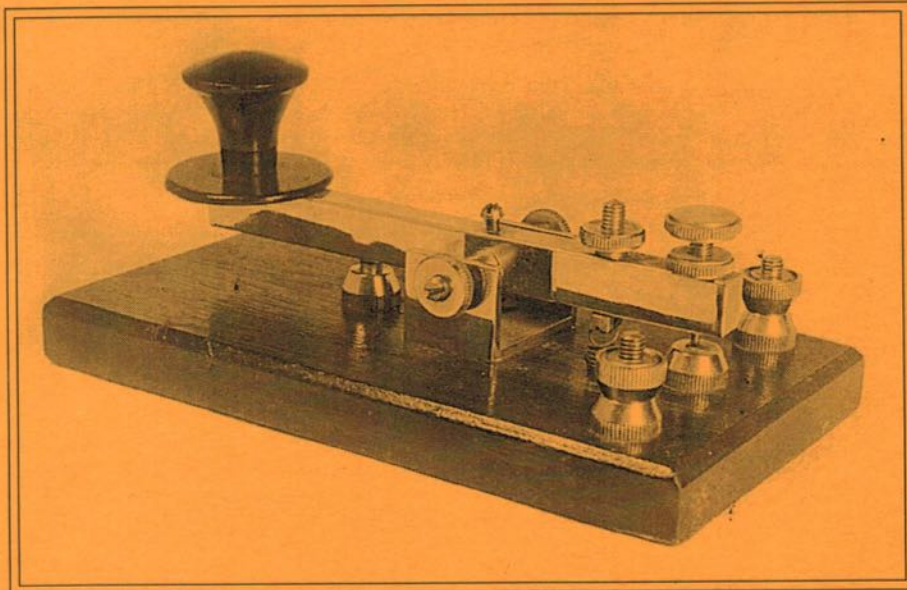


Flying
the flag
for
Morse

Number 47 – August 1996

Morsum Magnificat

The Morse Magazine



Ivalek Key



**Flying
the flag
for
Morse**

Morsum Magnificat

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Morsum Magnificat, 9 Wetherby Close,
Broadstone, Dorset BH18 8JB, England.
Phone/FAX: Broadstone (01202) 658474;
International +44 1202 658474

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

EDITOR Geoff Arnold G3GSR

CONSULTANT EDITOR Tony Smith G4FAI

(13 Morley Road, Sheringham, Norfolk NR26 8JE, England.
Phone: 01263 821936. e-mail address: tony@morsum.demon.co.uk)

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ON OUR FRONT COVER

Ivalek key. John Goldberg G3ETH writes, "This was my first Morse key, bought for me as a Christmas present in about 1940 from a toy/hobby shop. The finish is bright nickel plated brass, on a dark oak base 6 x 3 1/2 in. It was also offered in plain brass on a light oak base. I still have the original box, bearing the label 'Ivalek (Registered) Transmitting Key, Price 10/- each'.

Quite an expensive present for a schoolboy at the time!"

Collection G3ETH. Photo: G3GKS

Comment

YET ANOTHER MARINE COAST STATION, CURAÇAO/PJC, has closed its W/T services, and will be shutting down completely at the end of September. It's not a major coast station; in fact many readers have probably never heard of it. Curaçao, with its neighbours Aruba and Bonaire, form the Netherlands Antilles, a small island group situated in the Caribbean, just off the coast of Venezuela.

I wonder if the entrance to the harbour at the capital Willemstad is still as imposing as it was in the 1950s. The approach was a channel right through the centre of the town, with rows of traditional Dutch-style buildings along each bank. I am sure that no-one who sailed in there would forget it.

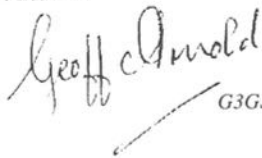
But that's not the reason why PJC is engraved upon my memory. I first went to Curaçao in 1951 on the Royal Fleet Auxiliary tanker *Wave Conqueror*, which I had just joined on the Tyne. As soon as we cleared the English Channel, the Captain handed me a message for our agents in Willemstad, so I duly consulted the official coast station lists and began calling PJC... and calling... and calling. I told the Captain I was having some problems, but he said there was no panic to clear the message – it could safely wait until we were a little nearer.

As several days passed, and I still got no joy, I was beginning to find my way around the exotic gear and all the drawers and cupboards in the radio office, and discovered tucked away in one a whole pile of correction booklets and addenda to the *Admiralty List of Radio Signals* and the *ITU List of Coast Stations*. It didn't take me long to realise that my predecessor on board had not been particularly diligent in entering the corrections – in fact none had been done for many a moon!

As the realisation dawned, I began to leaf through the corrections, looking for anything immediately relevant, and discovered – surprise, surprise, – that PJC had changed to new HF working frequencies about a month earlier!

At his next scheduled HF watch period I called him. He came straight back, telling me that he'd heard my previous calls and replied, but realised I wasn't hearing him for some reason. I apologised for any frustration I'd caused, and cleared that message, much to my own relief and that of the Captain. I am sure he'd been worrying about what a useless young R/O the Marconi Depot at Newcastle had given him – I was only just past my seventeenth birthday at the time!

The episode with PJC taught me one golden rule which was to remain with me – when your ability to do your job depends on up-to-date information being available at all times, make sure that you enter any corrections or alterations to that information as soon as they are notified!


G3GSR

MM47 – August 1996

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News

CW Still Very Active in the Third World

Writing to *The World Wireless Beacon*, R.J. 'Rich' Ostrowski, N2NA, a seagoing Radio Officer home on vacation, reports: "Listening to 500kHz may seem frustrating at times when you are shore-based and don't have a large vertical antenna and ground system to go along with your MF receiver. I'm saying this is part of the problem that 'listener stations' have here in the USA and since many are located well inland or near a large city creating receiver desense.

"Although 500kHz is still monitored by ships that carry R/Os, their life is now geared towards the operation of the ship's satellite terminal. The former CW departure and arrival traffic (TRs) that was sent to the local coast station is gone, replaced by modern methods.

"For the most part, this is all true here in the US. The Canadians are still quite active on 500 and there is some activity around Europe...

"When you sail east of Italy in the Mediterranean, and into the Indian Ocean and eastward to Japan, in my opinion things really liven up where marine CW is concerned.

"The Third World is alive and well on 500 as are its ships. Weather is only obtained in India via CW on MF and HF... I might add that the only WX being sent in the Mediterranean area is on CW by Italian coast station IAR

(Rome Radio). They have two skeds in the morning and one broadcast is quite long. They like CW and do a lot of HF traffic as well...

"There is one overlooked place to find a lot of CW activity, but you will not be able to hear it over here. I hear what seem to be thousands of stations on HF all over the place, in between the regular commercial segments, coming from the area of China, but I'm not sure. It is not in English, but sounds like every little village has a CW station – you can take it from there, and that is only my observation...

"On HF there is a fair amount of SITOR traffic and at half the cost of satellite communications. In the future SITOR will come on line stronger and it will be the replacement mode for CW as we go into the next century..."

Rich comments that although the bulk of the traffic once handled on CW by ships of the industrialised countries is now handled via satellite, Third World countries will hang on to maritime CW in spite of the change-over to GMDSS on 2 February 1999.

(Condensed from a report in The World Wireless Beacon, June 1996, Newsletter of the Society of Wireless Pioneers.)

Morse Still Used in the Royal Air Force

In MM45 we reported that the Ministry of Defence was advertising for an In-

structional Officer to teach telecommunications procedures and transmitting and receiving Morse code, at 18 wpm, at the No.1 Radio School at RAF Locking.

MM subsequently made enquiries about the present-day training for, and use of Morse in the Royal Air Force, and received the following reply from Squadron Leader M.J. Brackpool, Headquarters Logistics Command, RAF Brampton, Cambridgeshire.

"I can confirm that Morse still has a place in telecommunications in the Royal Air Force. Selected members of the Telecommunications Operator and Controller trades complete a 13 week course at No 1 Radio School Locking which has a passing out speed of 18 words a minute.

"During this course they are also taught military procedures, equipments and, of course, safety procedures. Once qualified, they will use their skills on various ground-to-ground and ground-to-air circuits at RAF bases throughout the world. I regret that because of the requirement for security, I am unable to provide any further details at this time."

Russian SOS

Scottish newspapers of June 29, reported a Russian cruise liner in difficulties 5 miles off Peterhead the previous day. Stonehaven Radio had alerted Aberdeen Coastguard to the *Alla Tarasova* in distress off Peterhead, after receiving an SOS in Morse code at dawn on the 28th.

The liner, chartered by Toronto-based Marine Expeditions, with 71 passengers and 68 crew on board, had lost engine power and was drifting out of control. Lifeboats from Peterhead, Fraserburgh

and Aberdeen, and two other vessels in the area, plus four RAF helicopters, stood by until power was eventually restored and the ship made her way to Peterhead. (*Thanks to John Nicholson GM0MFE and Jon Oates GM0VIY for sending press cuttings about this incident.*)

GMDSS Problems

BBC TV News on July 16 reported that at present the GMDSS system is in a state of near collapse. The bulletin claimed that more than 95 percent of distress calls received are now false. The reasons given range from unskilled personnel incorrectly operating the equipment to amateur yachtsmen storing distress beacons 'the right way up' in their garages. According to the report, Falmouth Coast Guard, alone, received 959 false calls in the last 12 months.

It was reported that training is falling behind and proving far more difficult than expected. This applied to both operators and to skilled maintenance personnel. Additionally, the supply of equipment from manufacturers is well behind schedule.

Perhaps of most importance to the system, the provision and maintenance of the large and highly skilled inspectorate required to monitor the system and enforce standards is proving almost impossible.

(Report submitted by Gus Taylor G8PG)

QRPers Troubled by DK0WCY

Writing in *Sprat* (Summer 1996), journal of the G-QRP club, the club's Chairman, Dr Gordon J. Bennett G3DNF, reports on difficulties that QRP (low power) amateur CW enthusiasts can

experience when operating in the frequency segment 3560 \pm 5kHz used by many QRPers.

The problem is the amateur radio beacon DK0WCY which transmits general propagation data on 3557.5kHz to an early morning and late afternoon schedule. The main beacon frequency is 10.144MHz but it has also been transmitting in the 80m band for the last two years because of poor reception of the main beacon frequency in Europe while solar activity is so low. It appears from correspondence between G3DNL and DL1VDL (DARC HF Manager), who runs the beacon project, that the 80m frequency was internationally agreed and allocated by the German licensing authority and cannot be changed.

For QRPers who operate in the same part of the 80m band this has been an unfortunate development. When, in November 1995, the beacon drifted off frequency, to 3559kHz, and developed a T7 note, complaints were lodged with Germany's national radio society, the Deutscher Amateur Radio Club (DARC), who operate the beacon with the approval of the International Amateur Radio Union (IARU).

The beacon has since been kept to its assigned frequency and has been reprogrammed to a new format and faster message speed but, says G3DNF, "its note could still be improved." Moreover, he reports, a promise to close the beacon down during major contests and QRP events has proved worthless.

The situation has now become somewhat heated. In the February 1996 issue of the German magazine *CQ-DL*, DL1VDL issued a statement to the ef-

fect that the G-QRP Club wants the segment around 3560kHz to be QRM (interference) free, and that CW QRPers are opposed to progress and use antiquated technology. G3DNF feels that it is a pity that the discussion has been degraded in this way but, he says, it is clear that the time has come to make the facts available to a wider audience.

He says, "It is true that 3560kHz, like all other internationally recognised QRP frequencies, has no status in band plans. We cannot therefore lay claim to it or its adjacent segment as DL1VDL believes we are doing. So far as the segment 3560 \pm 5kHz is concerned, all that we QRPers are saying is that anyone wanting to find us should look there.

"In among the QRM from commercial stations, 'fishfone' and other non-amateur stations, there is a higher probability of finding QRP CW activity there than elsewhere in the band. To the list of other likely sources of interference, we must now add DK0WCY. This reduces our options in what is often a crowded segment...

"We can only hope that DARC and their licensing officials can assign DK0WCY to a part of the band that is more suited for beacon operations. Regrettably, band planning prescribes no segment for this purpose, such as is found on some other bands.

"There is no denying that the beacon fulfils a useful role by providing regular propagation data, but once the listener has absorbed the 25 percent of its message that is of real interest, its repetitious signals begin to lose appeal." Finally, G3DNF asks his members: "Is its presence on 3557.5kHz of no con-

cern except to those who require it? Does it bother you, the QRPers who frequent the 3560 ±5kHz segment? Please let me know!"

Since writing the above article, G3DNF has been advised by the President of AGCW-DL (Telegraphy Activity Group - Germany), DL5QE, that AGCW does not wish to see any significant change in the current activity of the DK0WCY beacon, and it does not support the protests of the G-QRP Club.

The G-QRP Club has asked the European CW Association to lend its support to the suggestion that the DK0WCY beacon be allocated to a less intrusive part of the 80m CW sub-band.

(QRP is a specialised area of amateur radio where CW is still the principal mode used. MM will welcome correspondence on any aspect of this report – including DL1VDL's opinion of CW QRPers! – Ed.)

Pitcairn Stamps

Four stamps depicting amateur radio are to be issued by Pitcairn Island on 4 September 1996. One (\$2.50) shows Andrew Young, VR6AY, Pitcairn's first amateur, in 1938, operating a Morse key.

The 20¢ stamp lists the call signs of this year's members of the Pitcairn ama-



Pitcairn's \$2.50 stamp to be issued 4 September 1996

teur radio club, and two others, at \$1.50, show VR6IM requesting and receiving medical advice by radio.

HAREC for UK

Britain's Radiocommunications Agency has announced its participation in the Harmonised Amateur Radio Examination Certificate (HAREC) scheme. Between participating countries, it will now be a relatively simple matter for radio amateurs to obtain a foreign licence to operate abroad for periods over three months.

Countries which have implemented the appropriate CEPT Recommendation will issue on request mutually recognised HARECs to those who have passed a relevant national examination. In the UK, a Class B HAREC will be issued to anyone who has passed the Radio Amateurs' Examination (RAE), and a Class A HAREC will be issued to anyone who has passed the RAE and the Radio Society of Great Britain's 12 wpm Morse test.

In addition, any individual who currently holds, or has ever held, a full UK licence will be eligible to apply, whatever their original qualifications.

When a stay in any one country is likely to exceed three months, the HAREC can be presented to the relevant Administration who will issue a renewable full licence, dependent on the class of HAREC presented. CEPT Recommendation T/R 61-01 continues in operation for visits lasting less than three months, when amateurs can operate under the authority of their home licence.

In the UK, HARECs are available on request from the Radiocommunications

Agency (RA). Requests must be accompanied by either a current UK licence or proof of passing the RAE and, where appropriate, proof of passing the RSGB's 12 wpm Morse test.

Foreign nationals or British citizens who have obtained equivalent foreign qualifications, can obtain a full UK licence by presenting a HAREC issued by a recognised CEPT Administration. Applications should be made to the RA. (*Information from the Radiocommunications Agency*)

AGCW-DL Straight Key Party 1996

All licensed amateurs are invited to take part in the AGCW Straight Key Party on Saturday, 7 September 1996, on 7.010–7.040MHz, from 1300–1600 UTC.

Call: CQ HTP. **Mode:** 2xCW, using straight keys (handkeys) only. No use of keyboards or automatic readers!

Categories: A – Maximum 5 watts output (or 10W input)

B – Maximum 50 watts output (or 100W input)

C – Maximum 150 watts output (or 300W input)

D – Short-wave Listeners.

Exchange: RST + Serial Number/Category/Name/Age (XYL=XX), e.g., 579001/A/Tom/25; 579002/C/Mary/XX

Points for QSOs: A with A = 9, A with B = 7, A with C = 5, B with B = 4, B with C = 3, C with C = 2.

Logs: To include time (UTC), band, call, RST, category, calculation of points, description of rig used, and a formal declaration that a straight key only has been used. SWL logs to include both call-signs heard and at least one RST for each QSO logged. Logs to be sent to

Friedrich Wilhelm Fabri DF1OY, Grunwalder Str.104, D-81547 Munchen, Germany, by 30 September 1996.

Results: For list of results send self-addressed envelope +IRC, or see AGCW-Info (AGCW Magazine).

(*Information from AGCW-DL*)

Europe for QRP Weekend 1996

The rules for this internationally recognised QRP event, organised by the OK and G-QRP Clubs, are as follows:

Dates and times: From 1600Z, September 27 to 2359Z, September 29. Mode and frequencies: CW only, on 3.560, 7.030, 14.060, 21.060 and 28.060MHz, all ± 10 kHz.

Power: Not to exceed 5 watts RF output. Stations unable to measure output, take half of their DC input power (e.g., 10W input = 5W output).

Stations eligible: Any licensed radio amateur.

Call: CQ EU QRP. Contest exchanges: RST, power output, and name of operator.

Scoring: Only QRP/QRP QSOs count. Contacts with own country, no score; EU stations score 1 point for each EU contact and 3 points for each contact outside Europe. Stations outside Europe score 5 points for each contact with Europe. The final score is the sum of the points obtained on each band used.

Logs: Send separate log sheets for each band, showing for each contact, date, time, call, exchanges (RST, power, name) sent and received. Send logs to P. Doudera OK1CZ, U 1. baterie 1, 16200 Praha 6, Czech Republic, by 11 November 1996.

Awards: The leading three stations in

each continent will receive a certificate. In the case of any dispute, the decision of the organisers shall be final.

(Information from Gerald Stancey G3MCK, Communications Manager, G-QRP Club.)

MM Home Page

The new MM Home Pages, set up in May, had received over 600 visitors at the time of writing (end of July), and many congratulatory messages have been received from around the world. There is clearly a lot of interest in Morse telegraphy among Internet users!

For the information of those readers who do not have computers, a home page is an information source accessible by computer and the public telephone system.

The MM Home Page contains information about *MM*, including its origins, details of the contents of the current issue, extracts from previous issues, details of telegraphy books available from the MM Bookshelf, including selected reviews which have previously appeared in *MM*, and 'links' to other sources of telegraphic information, products and services.

The basic idea is to (hopefully) attract new readers to *MM*; also to provide a Morse 'presence' on the Internet to demonstrate that Morse enthusiasts are able to take advantage of modern technology as much as anyone else.

It is intended to update or change the material on the MM Home Page from time to time, so we hope that readers who have visited once will come again – and tell their friends to do the same! Please note that the correct URL for this

site is <http://www.retiarius.com/morsum/>

The MM Home Page was set up, and is maintained, by Retiarius. This is a service which can provide similar Web space at low cost for individuals, clubs, or small organisations, with little time to do the work themselves, but who wish to publicise their activities, products or services on the World Wide Web. There are special rates for Morse related clients. For full details, contact Paul Smith G8IAR, Craig House, 161 Leighton Avenue, Leigh-on-Sea, Essex, SS9 1PX. E-mail: psmith@retiarius.com or Tel: 01702 77094.

RUFZ Top-List Competition - Info Update

Top-List results, as at July 22, list 208 contestants participating from 30 countries. To indicate the range of achievement, the top scorer was DF4PA with 71 241 points, and a highest speed of 625 symbols per minute. The lowest score was 551 points, with a highest speed of 56. This demonstrates once again that the competition caters for both experts and improvers seeking to improve their reading skills.

An explanation of the Top-List competition was given in MM45, p.38. Updated information on where to send scores; how to get the Top-List results; and how to obtain both the RUFZ program and a soundcard extension, RFZSND, can be found on the MM home page.

Schurr Keys Available in UK

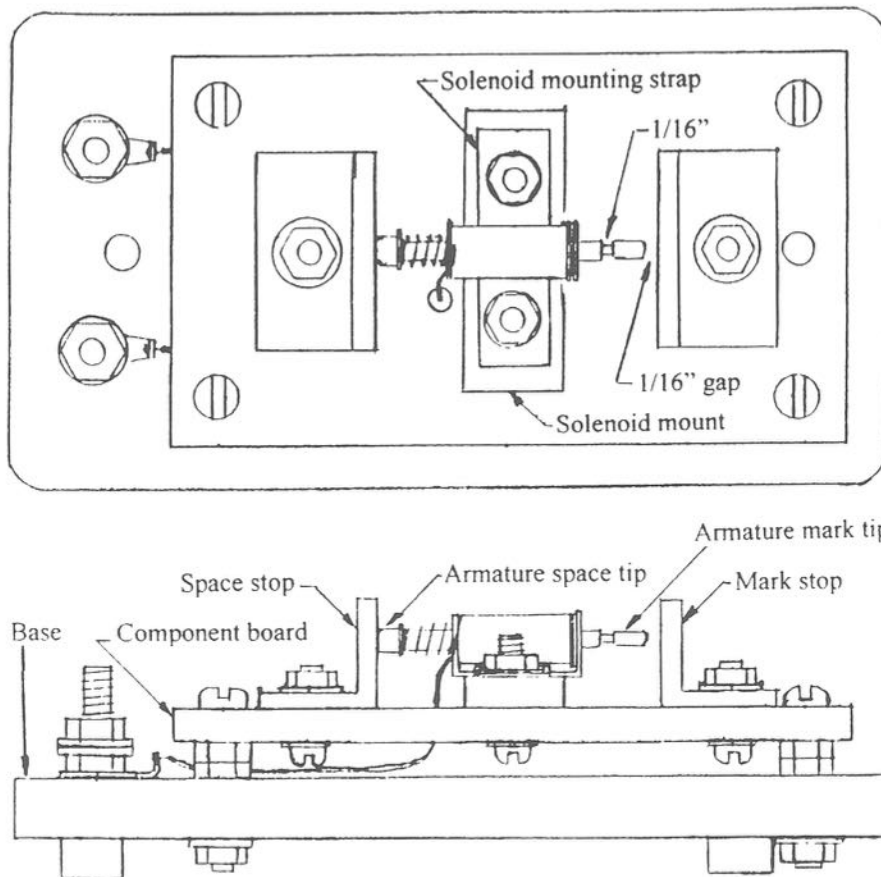
The QRP Component Company is to stock Schurr 'Profi' twin-lever paddles, also the 'Kleine' and full-size straight

keys, from Germany. The call sign engraving facility will not be available. Full details and prices can be obtained from The QRP Component Company, 7 Kings Road, Haslemere, Surrey GU27 2QA.

Make Your Own Solenoid Sounder

Jim Farris, W4FOK, has designed a simple sounder based on a 'surplus' so-

lensoid which provides a very reasonable substitute for the real instrument. Jim, whose 'MILL' program (which includes both International and American Morse, and the sound of a simulated sounder) was described in MM46, p.43, says: "Some of the people who are interested in landline telegraphy don't have sounders but aren't ready to buy a collector's item. Just to satisfy myself that one could



The W4FOK Solenoid Sounder. The base is 5 1/2 inches long, but it should be noted that the drawing is not exactly to scale

be built cheaply, I made several different sounders based on a small \$1.00 surplus solenoid that I saw advertised.

"One of them, which works quite nicely, is shown in the attached sketch. The solenoid has a resistance of approximately 51 ohms and requires an operating voltage of approximately 8 volts, corresponding to a current of about 157mA.

"Using a solenoid to implement a sounder is so obvious that I'm sure others must have thought of it. The idea struck me when I saw a picture of the small push-pull solenoid and thought it might work.

"However, the solenoid works best with a design which has the mechanical adjustments made at assembly and, in use, the current is adjusted for proper operation. If the design had to include all of the adjustments provided in the standard sounder design, it would be rather complicated."

Jim's sketch is reproduced here. If any readers would like to make their own solenoid sounder based on his design, photocopies of his instructions (4 sheets) can be obtained from Tony Smith for 70p (UK stamps acceptable) to cover costs. North American readers should contact Jim direct (address below).

The solenoid used is a 'Miniature 12 VDC Solenoid', with spring return, Cat.# SOL-23, price \$1.25 each or 10 for \$10.00, obtainable in the USA from All Electronics Corporation, order toll free 1-800-826-5432. Readers outside the USA may be able to obtain comparable solenoids, or experiment with others, and are asked to let *MM* know if they find a suitable source of supply. We will also

welcome details of alternative designs developed from Jim's original idea.

If all else fails, contact Jim Farrior, 1232 Harrison Point Trail, Fernandina Beach, FL 32034, USA, who may be able to provide a solenoid of the specified type.

In the meantime, Tony has three solenoids, kindly donated by Jim for *MM* readers. We feel we must limit this offer to readers outside the USA because US readers can obtain the specified solenoids within their own country.

Any non-US reader interested in having one of these solenoids to build a W4FOK Telegraph Sounder, therefore, please send a postcard to Tony (**at the address inside front cover**), writing on it the word SOLENOID and your name and address, in capital letters. The senders of the first three cards drawn from a hat on 30 September 1996 will receive the solenoids free of charge. Please do not write about other matters on the postcards, as these may be overlooked. Entries will not be acknowledged, and no correspondence can be entered into. The winners will be announced in *MM48*.

Radio Officers' Association of Europe

The ROAE was inaugurated in December 1995 as an association for practising and retired Radio Officers who have served ashore and afloat in the service of Europe's merchant marine. In response to enquiries from around the world, the Association now offers membership to all qualified radio officers, regardless of where they trained and served.

The ROAE was founded by Paul Durkin, who served as a radio officer



*Members of MEGS,
with plaques,
at their SFBM
celebration,
27 April 1996*

afloat and ashore from the 1960s before leaving the industry to go into PR in 1987. He began producing a quarterly newsletter for members earlier this year, and has arranged Members' discounts on services such as ferry crossings, hotels and insurance. He is also building a database of members who wish to establish contact with former colleagues from radio college or shipping companies. Other activities planned include regional reunions.

Further details are available from Paul Durkin, Secretary, ROAE, 73 Maple Drive, Burnham-on-Sea, Somerset TA8 1DH.

MEGS Morse Birthday Success

The Morse Enthusiasts Group Scotland held a successful 205th Birthday Party for Samuel F.B. Morse on April 27, operating Special Event Station GB4SAM.

The station was in the shack of the West of Scotland Amateur Radio Society at the Greater Glasgow Scout Group's

Activity Centre, Auchengillan. Around 80 contacts were made, with the station active on 20, 40, and 80 metres.

In the afternoon, a birthday cake decorated with a Morse key was cut and consumed by those present. At this time, a number of plaques were presented to founder members of MEGS, also one, suitably engraved, expressing appreciation to the West of Scotland ARS for acting as hosts for this MEGS event. Reporting in the Dundee ARC's Journal, Jack Nicholson GM0MFE, Chairman of MEGS, concludes: "A most enjoyable day and well worth all the effort. Here's to Sam's next birthday in '97".

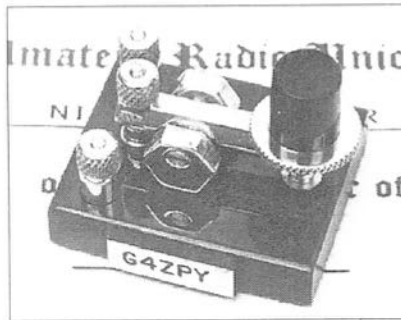
Golden Section Key

We are sorry that all stocks of the drawings of the 'Golden Section Key', featured in MM issue No. 27 have now been disposed of, and we are unable to supply further copies from the Editorial Office.

G4ZPY PADDLE KEYS INTERNATIONAL

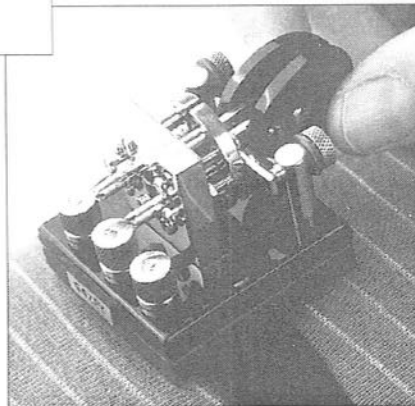
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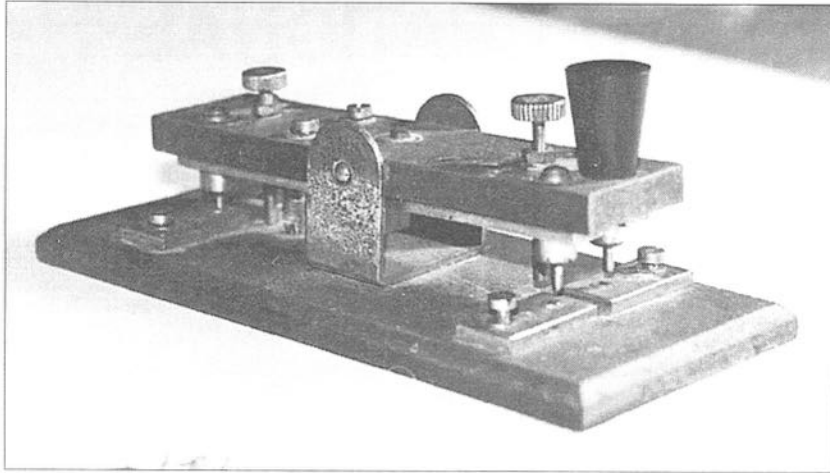
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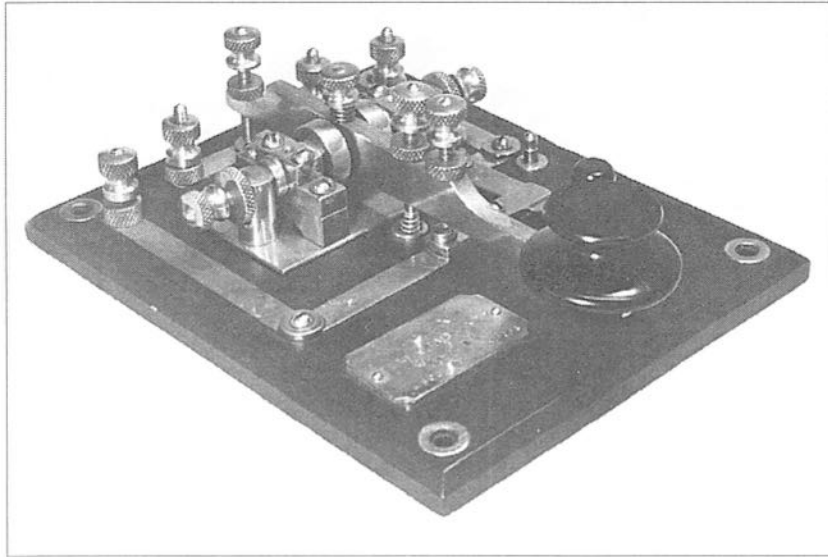
Showcase



Unusual double-contact key with two independent circuits. The non-metallic base measures 150mm x 70mm; the non-metallic lever is 120mm long and carries two conductors, each 110mm long, in parallel. Each contact is 1.5mm diameter and locates into a small cylinder about 8mm diameter, with a spring inside. After closing the circuit, the contacts can go down a further 2mm if the lever continues to be pressed. Because of the delay in closing and opening the key it could only have been used for slow operating. Possibly the key is intended to switch high currents, but in contradiction of this possibility the screwheads of the contacts are located close to the small knob with no protection provided against electric shock. The key was found by DL1BFE on board the last German lightship, Borkumriff, in 1988. There are no identification marks. It appears to be professionally manufactured and looks as if it was made several decades ago. (See 'Borkum – First Official Coast Station in Germany', by Gregor Ulsamer DL1BFE, MM32, p.34.)

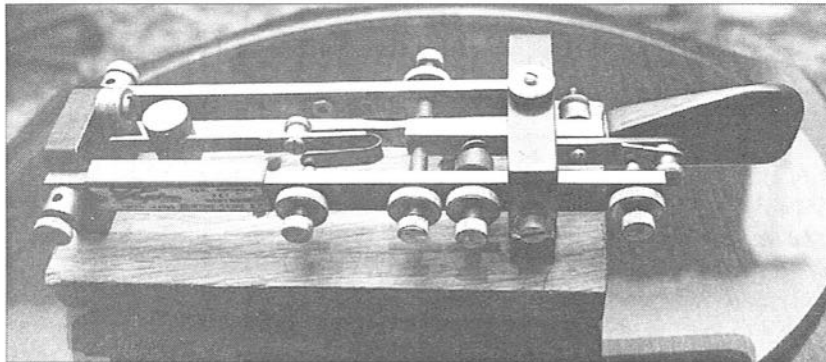
Collection/Photo: DL1BFE

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



Home-brew 'Apex' key, made by Robert W. Betts, N1KPR. Bob says this is a "very heavy, very friendly hand key". Utilises axial (rotational), radial (wiper) and thrust (end play) bearings. "It is significantly over-designed for what it has to do, but it's my key and I'll do what I want with it!" It has a 'key-up' closure as well as a manual switch. The 'up' closure may be a separate circuit

Photo: N1KPR



'Swallow' semi-automatic key by Dentsu Nieshi K.K., Tokyo

Photo/Collection: Nigel Ackland G0IIK

IN THE SUMMER OF 1943, at the age of 16, I was employed by Western Union as a messenger at Gainesville, Florida, working from June until early October of that year. Mr George Hack was office manager, a man of small stature, light hair, round face and slumped shoulders. He was friendly and was well-liked by the townspeople. On Sundays he was to be found singing in the First Baptist Church Choir. He was also a fine telegrapher.

Pat Winstead was assistant manager. She was short and plump, with greying black hair. Her job included the routing of telegrams to the messengers, explaining to them procedures or special handling. This was during World War II, and death messages were received almost daily.

Pat expected quite a lot from the messengers, but I got along with her very well. Once, when a little irritated with me over some matter, she remarked 'When this war (boom) is over, I'll remember who to hire when everyone wants a job.' I mention this because it was characteristic of Pat. The next day the incident was entirely forgotten. Like Mr Hack, Pat was a fine telegrapher.

Lois LaPlant was the evening manager. She did most of the office accounting. She was an attractive, well dressed, middle-aged lady, and was friendly to everyone. She too was a fine telegrapher.

Sarah Peacock, an attractive redhead from Quincy, was counter clerk. She received telegrams and money orders over the counter for transmittal. Sarah was a



Messenger

by L.A. Bailey

pleasant and sweet girl and we all liked her. She was not a telegrapher, but helped operate the two teletype machines that were in operation at that time.

I cannot recall the name of the first trick messenger. He was a large, ruddy, auburn-haired individual and was the only one of us who wore uniform. I reported for duty at 10:00 am, two or more hours after he did, to help during the busy time of day.

I was not required to wear a uniform, and that pleased me because uniforms were hot and made one perspire heavily riding a bicycle during the summer months. We furnished our own bikes, and Mr Hack sold tubes and tires to us at reduced price.

Mr Gillespie was an older gentleman who delivered telegrams, on foot, to the downtown business centre of Gainesville. He had a slight limp, but was faithful to his job. We all liked this older man who was still making his own way in the world and was grateful for a job until the war was over.

'Sunshine' Brewer was Western Union Lineman. Often he sat on the messenger's bench awaiting a call to deal with some trouble. He would go out, regardless

of weather conditions, and I have seen him go during summer lightning storms without hesitation.

He was of the old school when it came to line work. He preferred 'feeling' for the battery as opposed to using a meter. Old-timers like him hardly ever trusted a meter; but the young men who followed much preferred the meter to the jolt of direct current that never seemed to bother the old type linemen.

There would be two more years of war, than change would come. The old downtown of Gainesville gave way to the shopping centres that came with the post-war era. Doctors, lawyers, and accountants, began to move out into newly constructed professional centres. Some businesses

folded with change, while new ones often located elsewhere. The old downtown would never be the same.

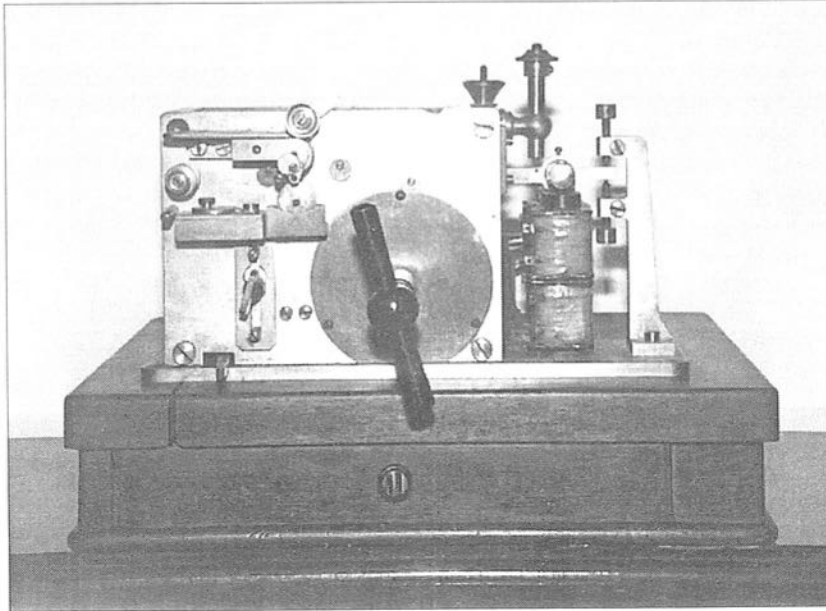
Morse keys and sounders, beautiful precision clocks, and even the two early tape teletypes, gave way to more sophisticated equipment. Teletypes were improved and often set up in businesses, thus eliminating much of the need for messengers. Telegrams to individuals began to be telephoned locally. Then, as telephone costs became more nominal, telephones were used from city to city in place of the telegraph.

I am glad that I worked as a Western Union Messenger. It was an honour, and an experience that I shall not soon forget.

MM

DOMESTIC SERVICE Check the class of service desired, otherwise this message will be sent as a fast telegram.		WESTERN UNION TELEGRAM <small>W. P. MARSHALL, PRESIDENT</small>		INTERNATIONAL SERVICE Check the class of service desired, otherwise the message will be sent at the full rate.	
TELEGRAM				FULL RATE	
DAY LETTER				LETTER TELEGRAM	
NIGHT LETTER				SHORE SHIP	
NO	WDS-CL OF SVC	FD OR COLL	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
PLEASE SEE DIRECTIONS BELOW					
Send the following message, subject to the terms on back hereof, which are hereby agreed to					
To _____					19__
Street and No. _____					
Care of or Apt. No. _____					
Place _____					
Form 1226 (R 8-60)					
(Signed) _____					
SENDER'S PERMANENT ADDRESS _____					
DIRECTIONS FOR SENDING WESTERN UNION TELEGRAMS FROM TRAINS					
To send this telegram en route, it may be handed to porter, car attendant or railroad trainman for filing at the next stop of this train where arrangements have been made for the onward transmission of telegrams. Ask the porter or other train personnel for the name of the next stop from which telegrams may be forwarded. It is unnecessary to prepay the charges. The message may be sent "COLLECT" or it may be charged to a Western Union charge account; or, if preferred, a bill will be rendered to home or business address. If you have a Western Union credit card, it may be charged to its number. Please check below whether telegram is to be sent collect, or billed to you; in the latter case, please fill in necessary billing information.					
<input type="checkbox"/> SEND COLLECT					
<input type="checkbox"/> CHARGE TO W. U. ACCOUNT OR SEND BILL TO _____					
		<small>(Full Name)</small>		<small>(Number--if credit card is used)</small>	
				<small>(Street Address)</small>	
				<small>(City & State)</small>	

Info Please!

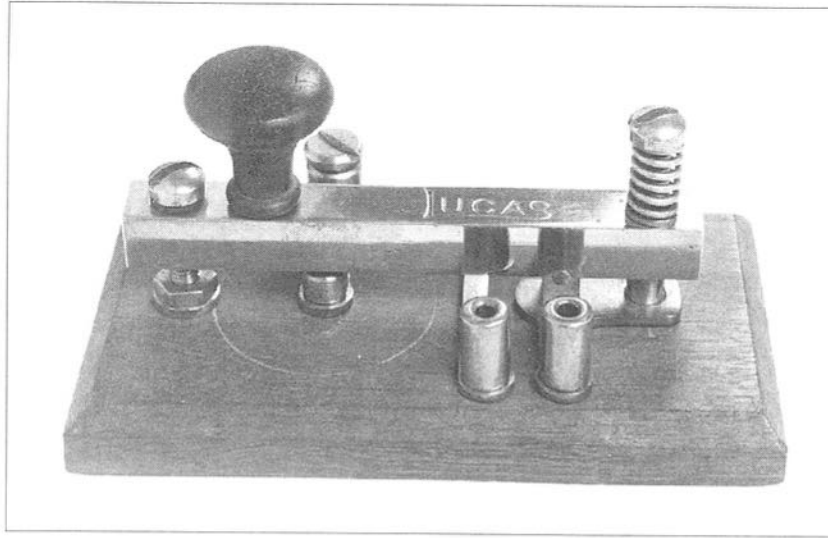


Morse Inker. Stamped on base $\frac{W}{53}$ $\frac{D.17}{234}$ Information requested

Collection/Photo: John Francis, G3LWI

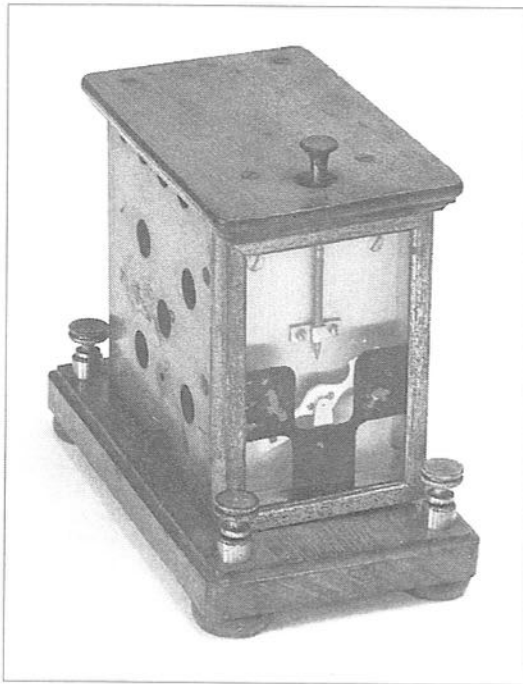
*Readers require further information on the keys, etc., featured here.
Please write to Tony Smith, 13 Morley Road, Sheringham, Norfolk NR26 8JE
if you can help.*

All useful information received will be published in MM in a later issue



Lucas key. Info wanted

Collection: Geoff Williams. Photo: Geoff Arnold



*Sounder with indicator.
Information requested*

Photo/Collection: Fons Vanden Berghen

Bookshelf

A mail order book service for selected telegraphy and radio titles. The letters *MM* or *RB* followed by a number after each title indicate the magazine and issue in which a review appeared.

The prices quoted for each title are inclusive of postage and packing, the first figure being for despatch to UK addresses, the second for despatch to the rest of Europe by airmail or elsewhere in the world by surface mail. Airmail rates for the rest of the world on request, or if you are using your credit card we can ship by air at your instruction, simply adding the difference in postal cost to your bill.

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McELROY, World's Champion Radio Telegrapher by Tom French	£14.70 (UK): £15.40 (Eur/Sur)
The Story of the Key by Louise Ramsey Moreau (MM38)	£3.95 (UK): £4.25 (Eur/Sur)
Wake of the Wirelesman by B. J. Clemons (RB41)	£12.95 (UK): £13.75 (Eur/Sur)
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————— Credit card orders welcome by phone or fax on 01202 658474 —————

* Price increase for orders received after 30 September 1996 - see page 44 *

New to the Bookshelf

Transmitters, Exciters & Power Amplifiers

by Raymond S. Moore

The long-awaited companion to Ray Moore's popular reference work *Communications Receivers - the Vacuum Tube Era*. It covers 1930 to 1980, with brief specification of 561 transmitters produced by 118 companies, with 470 photographs.

As with the receiver book, only the products of US companies are listed, in this case confined to sets covering the HF amateur bands and offered to that market either directly or through surplus channels.

At first, I thought this book would have very little appeal this side of the Atlantic, but I was pleasantly surprised to find the number of sets which I had seen offered for sale second-hand in the UK radio amateur press, or on the 'bring-and-buy' at rallies.

The opening chapter 'Transmitter Development' includes a most useful chronology of changes of technology, practice and regulations over the 50-year period. There follows a brand by brand listing of equipment, usually with a potted history of the producing company.

All the famous names are there, of course, but there are many 'unknowns' too, and some quite exotic pieces.

144 pages 8 1/2 x 11in, softback

£16.00 (UK): £16.85 (Eur/Sur)

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Morse Key Tensioners

DENNIS GOACHER, G3LLZ, HAS PREPARED a 14-page catalogue depicting the types of springs used to control the action of Morse key arms (levers) over the years. He has studied drawings and photographs and examined many types of key to produce this list, but is at pains to stress that it is not exhaustive.

He continues to search for further types and invites readers of his booklet to contact him if they know of others which should be included in an updated version at a later date.

Having said that, he has produced a comprehensive list which will be invaluable to key collectors in describing and cataloguing their keys. He identifies eight different basic types, namely: Tension; Compression; Compression Conical; Compression Hairpin; Flat Moving with the Arm; Flat Fixed to the Base; Flat, Semi-Hair Pin; and Torsion.

Within these types, he has identified twelve different styles, ranging from Alfred Vail's original key of 1844, through various styles of the Victorian era up to and including those of the present day. He has numbered these styles so that correspondents describing their unknown keys (particularly if they are sending details to *MM*!) can identify the spring action as, for instance, 'G3LLZ Style 7'.

Dennis is now embarking on a similar booklet describing pivot arrangements for keys. Such a publication linked with the 'Tensioner' booklet will provide a

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Book Reviews

Morse Key Tensioners
reviewed by Tony Smith

&

Watchers of the Waves
reviewed by the Editor

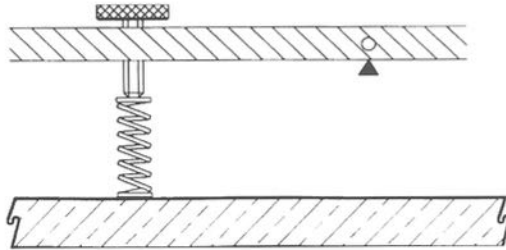
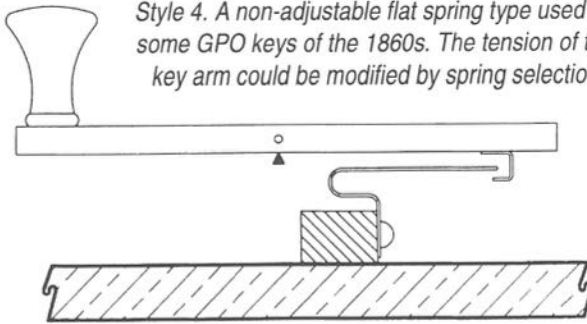
very useful source of information and reference on key characteristics. Although modest in size, both will undoubtedly become essential residents on the bookshelves of all serious key collectors.

The 'Tensioner' booklet is printed on good-quality A4 card. It is elegantly presented with excellent illustrations, and is available now. *MM* will publish details of the 'Pivot' booklet when it becomes available at a later date.

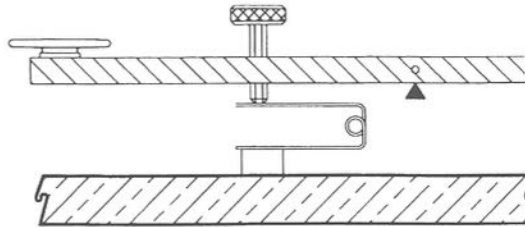
Morse Key Arm Tensioners by D.J. Goacher, G3LLZ, is available from the author at: 27 Glevum Road, Swindon, Wilts SN3 4AA. For UK readers, the price is £3.00 including postage. For overseas readers the price is £3.50 including postage. Payment must be made in sterling.

MM47 – August 1996

Style 4. A non-adjustable flat spring type used on some GPO keys of the 1860s. The tension of the key arm could be modified by spring selection



Style 6. The compression spring. Generally attributed to Thomas Avery (USA) 1850. Widely used up to the present time, particularly in the USA



Style 12. 'Safety Pin' type of spring. Found on some American keys of 1850-1860

Examples of drawings and descriptions from Dennis Goacher's new book.
In each case, the knob end of the arm is towards the left

Watchers of the Waves

A BRAND-NEW BOOK from the publishers of *Radio Bygones*, this is a history of Maritime Coast Radio Stations in Britain. It covers developments and events from Marconi's early experiments, through the days of spark, valve, and automatic W/T and R/T to the computer-controlled systems of the present day.

The author is Brian Faulkner, an ex-seagoing radio officer who 'swallowed the anchor' to join the Post Office at Portishead Radio. He became manager of Portpatrick Radio in 1981, moving to Land's End in 1987. He is now responsible for Land's End, Portpatrick, Niton and Humber Radios.

The first part of the book looks at the coast station service as a whole, identifying particular phases of development: 1896-99; 1900-12, 1913-1945; 1946-1969 and 1970-1995.

There follows a chapter describing a number of early stations at sites which were subsequently abandoned in favour of more suitable locations.

The next section contains a chapter devoted to each of the well-known stations – names and callsigns which will tug at the heart-strings of any ex-coast station operator or seagoing R/O – Anglesey/GLV, Cullercoats/GCC,

Humber/GKZ, Ilfracombe/GIL, Land's End/GLD, Malin Head/GMH (later EJM), Niton/GNI, North Foreland/GNF, Oban/GNE, Portpatrick/GPK, Seaforth/GLV, Stonehaven/GND, Valentia/GCK (later EJK) and Wick/GKR.

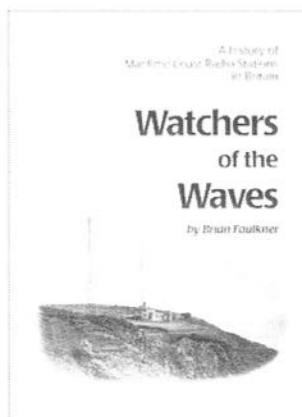
The book concludes with two appendices. The first is a glossary of terms, which will be of particular help to 'old-hands' who may have swallowed the anchor many years ago and

be unfamiliar with the jargon and abbreviations associated with some of the more modern systems.

The second appendix is a summary of developments in individual stations – new callsigns, new frequencies, new sites, new services and the like, which has been compiled by Charles Bryant GW3SB from his extensive research. This lists

coast stations available for public correspondence, those handling restricted correspondence, Admiralty D/F stations, stations providing broadcasts to merchant ships, and point-to-point stations operating on marine frequencies.

Watchers of the Waves is published in softback, comprising 128 A4 pages, and is profusely illustrated with 24 drawings and more than 80 photographs. It is available from the Morsum Magnificat Bookshelf (see page 18) or from our stand at rallies and swapmeets. **MM**



Morsum Magnificat

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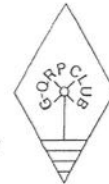
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G-QRP Club

The G-QRP Club promotes and encourages low-power operating on the amateur bands with activity periods, awards and trophies. Facilities include a quarterly magazine, Morse training tapes, kits, traders' discounts and a QSL bureau. Novices and SWLs welcome.

Enquiries to **Rev. George Dobbs G3RJV, St Aidan's Vicarage, 498 Manchester Road, Rochdale, Lancs OL11 3HE.** Send a large s.a.e. or two IRCs



FISTS CW Club – The International Morse Preservation Society



FISTS exists to promote amateur CW activity. It welcomes members with all levels of Morse proficiency, and especially newcomers to the key. The club has awards, nets (including a beginners' net), dial-a-sked for beginners, straight key activities, QSL bureau, newsletter, and discounts from traders.

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

THERE CAN BE VERY FEW OPERATORS, either amateur or professional, who do not remember their first QSO. I certainly do. It was a disaster.

I had just obtained my First Class PMG Marine Certificate after spending some two years at a well-known London Radio College. Two years in which the mysteries of electricity and radio had been hammered into us, along with interminable hours of Morse practice, wireless procedure etc., etc.

Now, according to the wording in the red passport-like document, I was deemed capable, amongst other things, of working in Morse at a speed of 25 words per minute – or so it said!

Yokohama Bound

Very soon thereafter I joined my first ship in London as Third Radio Officer. She was the P&O liner *Corfu*, a turbine steamer of some 14 000 tons gross, engaged in the Company's China and Japan Mail Service. On a fine Spring afternoon, a couple of days later, she edged away from Tilbury landing stage bound for Yokohama via intermediate ports.

Now, more than sixty years later, I

Tale of a First Tripper

by Leonard Moss G4VXJ

can well remember the scene. As was customary, the Third R/O (or dogsbody) kept the afternoon (1200–1600 hours) and middle (0001–0400) watches, and the Chief R/O, whom we shall call MacNab, had already explained to me

at some length what I would be required to do while on watch.

I had been sitting for some time in the wireless room with the receiver switched on listening to the babel of sound which only 500kHz can produce during a single-operator period (ships having only one operator keep radio watch for four two-

hour periods daily, with a two-hour break between periods), when I noticed MacNab standing just inside the door watching me.



... FIRST QSO ...

Send a TR

As I caught his eye he asked, "Did they never teach you anything in that radio school of yours?". I must have looked blank as he went on. "Did they never tell you anything about sending a TR?" Now the penny dropped. Of course. As soon as a ship leaves port it should notify the nearest coast station of the fact.

For the benefit of non-marine operators I should point out that TR (thought to stand for Telegraph Rush) is a short signal sent by a ship to a coast station giving the ship's name, next port of call, and position, to enable any radio traffic addressed to the ship to be forwarded via the most advantageously situated coast station. TRs received at coast stations from ocean-going ships are automatically forwarded by them to Lloyds for that organisation's shipping intelligence.

I must have continued to look stupid. "Well, come on then", MacNab said, "We're almost coming up to the Nore now". With growing apprehension I began to realise that he meant I should actually start up the transmitter and make a call.

Cacophony of Grunts

Me, live, on the air. This was not how it had been described at radio school. We had been led to believe that first trip

juniors were broken in gently, with some time elapsing before being allowed on the key. MacNab obviously believed in tossing his juniors in at the deep end immediately.

Slowly I drew the motor starting handle over the studs. Miraculously, it seemed, the large spherical valves on the MF transmitter glowed into life. Somehow I remembered to check that the settings were correct for 500kHz, and that the aerial switch was in the

right position. All the time I was desperately trying to pick out GNF (North Foreland Radio) from the cacophony of grunts, whistles and rasps which filled my phones.

I glanced at the clock. No way out there. It still needed a good ten minutes to the next silence period. I looked

round at MacNab once more, and with sweating hand reached out for the key and tentatively called GNF.

He's Answered You Twice!

Nothing happened. I waited. Once more I called, panic rising. Still no reply – what was I doing wrong? Now MacNab was at my elbow. "What about it then! He's answered you twice already – Come on!"

Answered me twice? I hadn't heard him. My mind seemed to have gone blank. All I heard was a loud whanging note sending at colossal speed, swamp-



... TRYING TO PICK OUT GNF ...

ing other signals after I stopped sending. But wait, here it was again.

Somehow, I managed to catch what I thought was my callsign followed by a meaningless jumble of symbols, but there was no mistaking the final impatient K K K. With a damp nervous paw once more on the key, I carefully sent "GNF de GRNW TR CORFU QTO TILBURY BND GIBRALTAR QRU IMI QRU +".

They Can always Tell!

Again the loud crashing note from

which I managed to decipher "AT LAST R RTR QRU GA +".

I flopped back in the chair with relief. Glancing up I was just in time to catch a ghost of a smile on MacNab's dour face.

"Not to worry", he said reassuringly, "They can always tell a first tripper and sometimes try to take the mickey a bit. Don't worry about it. In a little while you'll give as good as you get. Don't forget to enter it in the log." With that, he left me to get on with it. **MM**

Readers' ADs

FOR SALE

TWO KEYS: One Hi Mound model HK706, boxed, unused, £20 + p/p; one RAF 10F/127 key as shown on page 34 of MM41, £15 o.n.o. + p/p. Peter Mitchell G4XYK, 19 Ashbourne Avenue, Whetstone, London N20 0AL.

RAILROAD TELEGRAPH HISTORY BOOK: 1852-1913. \$9.95 US (Foreign \$14.95 USD in US funds), prepaid. Limited quantities of Morse ephemera, Samuel F.B. Morse photos, Code Instruction Manuals and Morse code / Ham Story Book. Info: SASE or equivalent postage funds. Robert W. Betts, 8 Little Fawn Drive, Shelton, CT 06484 USA.

WANTED

A COPY OF KEYS, KEYS, KEYS by Dave Ingram K4TWJ. I am also inter-

ested in getting in touch with hams/key collectors in the Netherlands to exchange information about our collections and to see if any swaps are possible. Herman Brauckmann PA3DJI, Louis Couperuslaan 10, NL 2343 DZ, Oegstgeest, Holland.

SPECIAL TELEGRAPH EQUIPMENT. Single needle; Undulator; Wheatstone... Can be collected in the UK. Buy or swap (TGR, TF, radio...). Fons Vanden Berghen, Lenniksesteenweg 462/22, B-1500 Halle, Belgium. Tel: Office +32.16.38.27.21, or late evening: +32.2.356.05.56.

EXCHANGE FOR KEYS

HELIOGRAPH No.5 Mk V in excellent condition: Marconi Induction Coil: also Training Set Universal Wireless No.1 Mk 2, Cat. No. YA8316, with one dozen Units Operator No.1 Mk 2. Wyn Davies, Pen-y-Maes, Halcog, Brymbo, Wrecsam LL11 5DQ.

NOTE! – The book *Wires, Wheel and Wings* is now back in print, see page 18

THERE IS, AT THE SAME TIME, a central in the Paris region as secret, exclusive, and efficient as the London home station. Although it has the same cloistered library atmosphere, the equipment is different. Attached to each receiver are a television-like cathode-ray tube and a telephone. Three hundred receivers hum softly while 300 screens emit a cold greenish glow as they constantly monitor 30 000 frequencies between 10 kilocycles and 30 megacycles.

These ultra-modern receivers are called 'panoramic' receivers. This means that each cathode screen gives an instantaneous picture of all radio traffic on a band 100 kilocycles wide. Each station shows up as a luminous spot. The screen is graduated in kilocycles, and each operator has a list of frequencies used by stations that are under German control or are abroad. Therefore, any spot suddenly appearing outside of these known frequencies unquestionably represents a suspicious station, which very likely is clandestine.

It is 10:25 p.m. A spot has just lighted up on one of the screens. Someone takes down the telephone, announces slowly and clearly, in a low voice: "Achtung, drei vier sechs funf kilohertz" ("Check three four six five kilohertz") and hangs up. The other hand sets the Telefunken receiver Kln A to a frequency of 3465 kilocycles while a wire recorder begins to hum.

German Direction-Finding

from *Secret Warfare*
by Pierre Lorain F2WL

Originally published in French in 1972, *Secret Warfare* is a superb book which covers in detail the weapons and the communications systems of the French Resistance in WWII. In this excerpt, the author has just described a typical urgent clandestine transmission from France to England. The operator has sent his message and has waited seventy minutes for a reply from the London 'home' station, all the time worrying that his signals may have been detected by Gestapo direction-finding stations. Finally the reply is received and acknowledged. The operator hurriedly dismantles his station and disappears into the night. Read on for a factual and chilling description of just what the clandestine operator was up against when he or she extended transmission time for more than a few minutes...

We are no longer 'at home', but at the very centre of the spider's web of the formidable Reichssicherheits-hauptamt, a secret organisation often designated by its initials RSHA, whose Department IV, the Gestapo, is in charge of reprisals against subversive plots.

Telephones have rung simultaneously at the same 10:25 p.m. in the large goniometric stations at Brest, on the tip of the Brittany peninsula, and at Augsburg and Nuremberg, both in southern Germany. After receiving the message "Achtung, drei vier sechs funf kilohertz," an expert at each station sets the frequency on a Telefunken. A round cathode-ray screen, with a compass rose marked on its periphery, is attached to the set. A lighted beam instantly springs out from the centre of the screen, indicating an extremely precise azimuth, or direction.

It is 10:27 p.m. Brest, Augsburg, and Nuremberg relay their 3 azimuths to the operations room, where they materialise as threads on a huge wall map of Europe, extending from the 3 goniometric bases and crossing to form a triangle with sides about 10 miles long.

The unknown station is located in the operations zone of the Clermont-Ferrand mobile regional base in central France. It is 10:34.

The operations room radios the Clermont base and gives the suspected frequency and the position-finding coordinates. Clermont acknowledges the message and calls the garage. Two front-wheel-drive Citroën 11s, each equipped with 4 civilians carrying machine pistols, and two 4-seater Mercedes-Benz convertibles with fake French licence

plates, dash off. The receivers inside the vehicles are quickly set on 3465 kilohertz. It is 10:39. The clandestine radio operator ended his transmission 9 minutes ago. The frequency is quiet. Only a teasing background noise reaches the receiver headphones.

Nevertheless, the vehicles move toward the intersecting points of the position-finding triangle, lie in wait at road crossings, and stay on the lookout. They constantly communicate by radio among themselves and with their command post, which has just signalled that the unknown is waiting for a reply from his home station. If the clandestine operator had incautiously communicated again with his base, he would have been done for.

The technical teams in the two Mercedes wait anxiously. At 11:40, the response from London arrives. The rotating aerials are ready for a final survey. The Citroëns rev up their motors for the hunt.

At 11:42, the clandestine station replies: "QSL AR". The transmission lasts less than 3 seconds – not enough time to determine the station's position. The cars return empty-handed.

From this point on, however, Clermont has this frequency surveilled by patrol cars prowling the edges of the suspect triangle. With any new transmission from the clandestine outstation, the cars would situate their prey within a new, smaller triangle with sides half a mile long.

Meanwhile, the magnetic wire which recorded the messages is sent to the cryptanalytic service. With the help of electromechanical equipment, the service determines within a few minutes if the texts are in an unbreakable system or

not. If the messages cannot be solved, the order is sent to Clermont to liquidate the outstation immediately. This outstation is extremely dangerous and nothing can be learned from analysing its traffic. On the other hand, if the services uncover some weaknesses, the code will undoubtedly be broken within the coming days or weeks. Clermont is ordered to watch the transmission site discreetly and allow it to operate for the time being so that, when the time comes, the entire network can be hauled in.

If the RHSA is relentless and the radio operator persists in transmitting from the same place, he soon becomes a victim of a man who is looking at the watchlike dial on his wrist of his field-strength meter.

When the suspect area is reduced to a triangle of 200 yards on a side by the Mercedes, to which has been added, for closing-in operations, a small delivery truck covered with a tarpaulin, these vehicles are replaced by some harmless-looking pedestrians wearing bulky rain-coats to hide their reassuring 'bon vivant' stoutness. These pedestrians appear to be late, because they walk quickly while looking at their 'wristwatches'. Their stoutness conceals an extremely sensitive field-strength meter. The dial of the wristwatch is a measuring scale whose hand movements tell a Gestapo agent whether he is getting warm or cold. Two or three men, each with one hand in a pocket, follow each pedestrian. One pedestrian suddenly disappears into a building. The group marches after him. A car stops next to the sidewalk ... the radio operator is done for.

text continues on page 36

Position-Finding Technique

The First Phase of Position-Finding (see facing page)

The gray concentric rings represent the areas normally covered during the day by a transmitter of 4 watts, transmitting on a frequency of 7 megacycles.

The first phase of position-finding delimits the clandestine station within a triangle 10 miles on each side.

Alerted by the panoramic monitoring central at Paris, the far-off bases of Brest, Nuremberg, and Augsburg seek the transmitter's position.

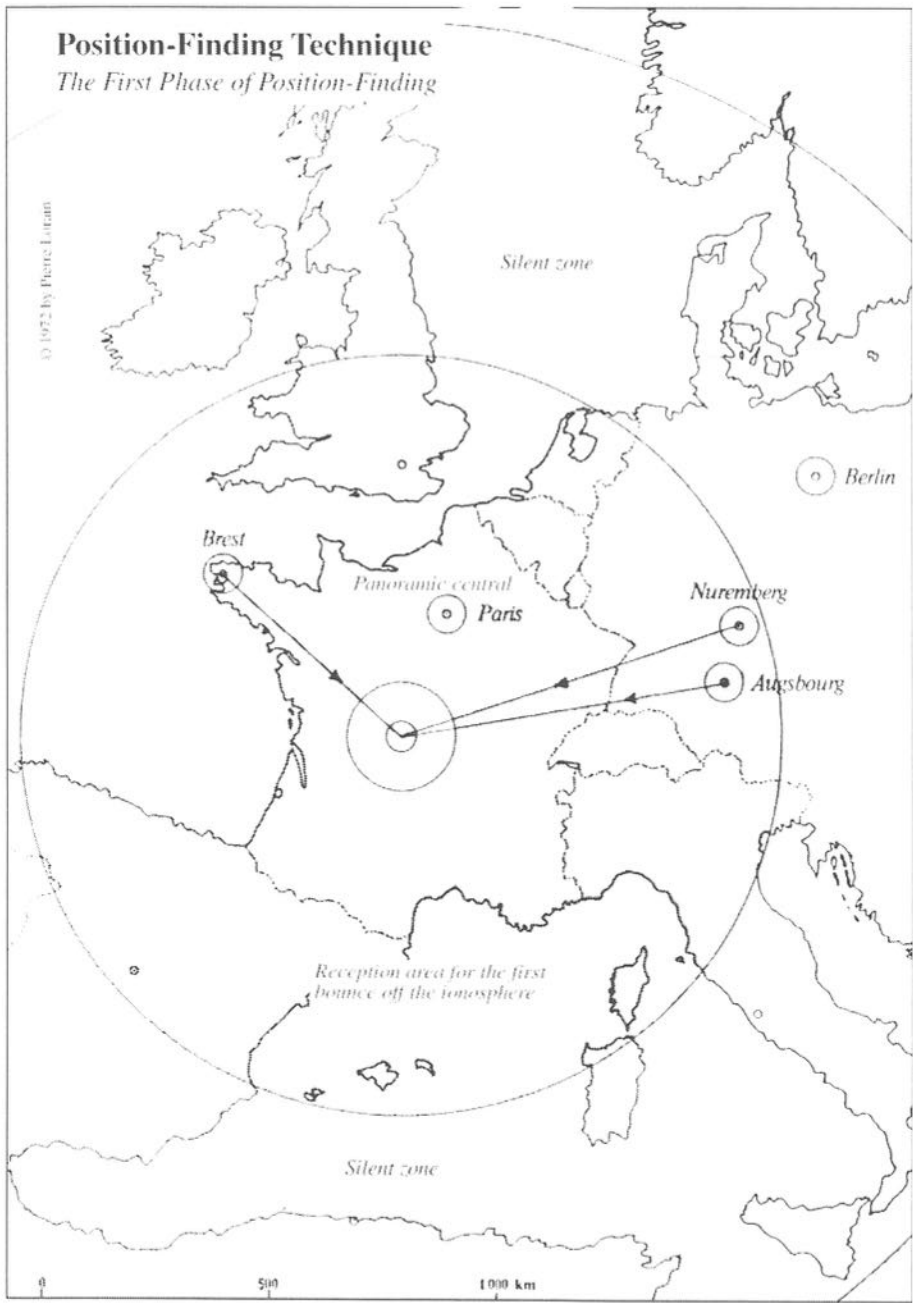
Note that the base at Berlin, located in the silent zone at this hour of the day, is unable to pick up the clandestine station.

The first phase of position-finding is unavoidable in view of the automatic and systematic monitoring of all frequencies. This provides an initial, imprecise localisation of a presumed centre of resistance, but it is not dangerous, in itself, for the operator.

NOTE: This map of theoretical average wave propagation was established through experiments with an SOE set, Model A Mark III, for a frequency of 7000 kilocycles, operated about 10 a.m. in April, from the Creuse department in central France.

Position-Finding Technique

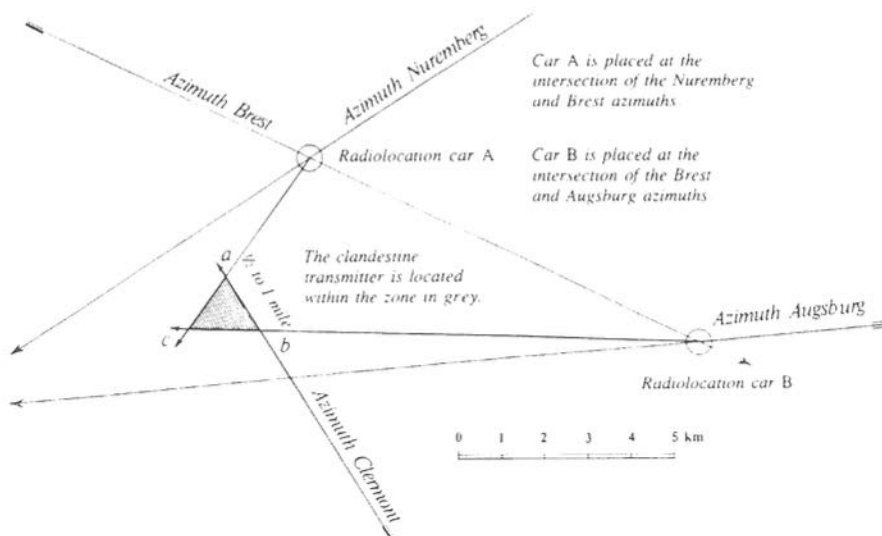
The First Phase of Position-Finding



Second, Third, and Fourth Phases of Direction-Finding

Second Phase

The second direction-finding phase locates the clandestine station within a triangle measuring $\frac{1}{2}$ to 1 mile along the sides. Direction-finding is carried out within the range of the ground wave, by a stationary regional base (in this case Clermont-Ferrand) and two cars seeking the direction from which the signal is coming from their locations at the apexes of the triangle determined by the first phase.

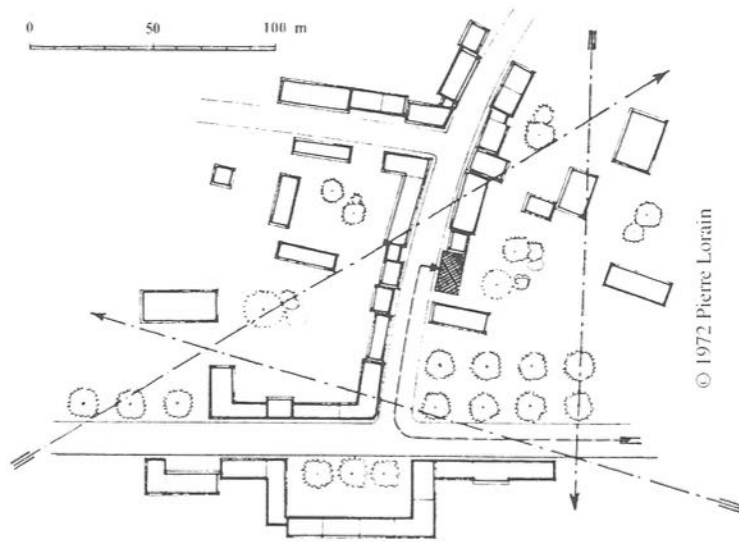
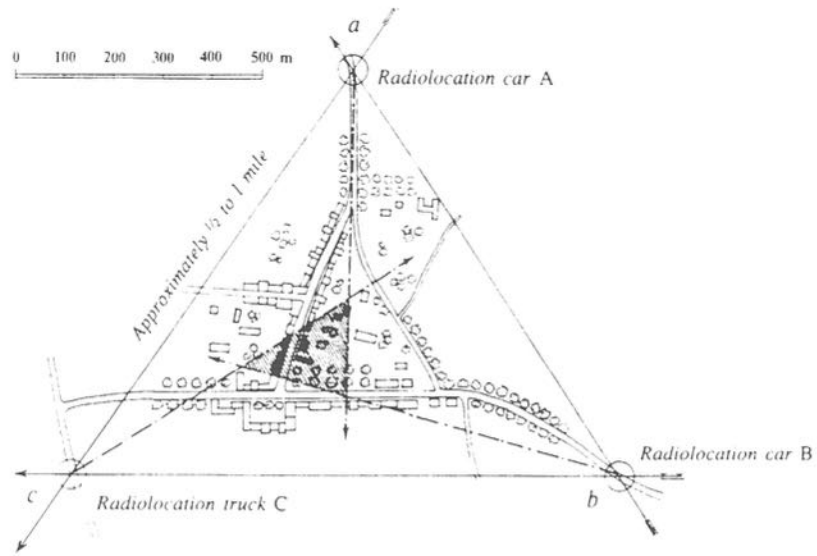


Third Phase (see top of facing page)

This third phase locates the clandestine station within a radius of approximately 200 yards. Direction-finding is carried out by A, B, and C vehicles at the intersecting points of the triangle defined by the second position-finding phase. Note: The operator is not yet in imminent danger, but he should move and never return to the same place.

Fourth and Final Phase (see opposite)

The final phase of approach is made with the field monitor in the 200-yard zone defined by the third phase. Pedestrians equipped with miniature field-strength meters and walking down the main street of the area discover the transmitter inside the building indicated in grey. The operator is in immediate danger. If the troops have set up barricades, he is practically lost. Towards the end of 1943, the operating schedules handed over to each operator were, in theory, to prevent the fourth phase of position-finding from taking place.



German Direction Finding

text continued from page 32

If he had time to swallow his poison tablet, the removal of the body is very discreet. If the tenants notice anything, the men say that their neighbour has just been arrested for dealing on the black market. If shots are exchanged, the next day the paper runs a short article telling that a dangerous repeat offender shot at police who had come to arrest him and that the police had killed him.

We have just described the direction-finding method employed at the beginning of 1943. This method, almost completely automated through electronics, was even then highly perfected.

Let's summarise the times required:

Direction-finding of the suspect frequency by the Paris station:

instantaneous

Transmission by direct telephone line to position-finding bases: **2 minutes**

Direction-finding by the 3 bases:

instantaneous

Transmission to the operations room, representation of azimuths on the map, and location of the goniometric triangle:

7 minutes

Transmission of coordinates to the closest mobile bases and dispatch of vehicles: **5 minutes**

Total: 14 minutes

If the mobile direction-finding base is in the same city as the clandestine transmitter, the transmission site can be located within a 200-yard radius in less than a quarter of an hour.

In 1943, one could drive through Paris, north to south, in less than 10 minutes. Therefore, if a transmitter is operating for the first time, a direction-finding vehicle can be within sight of the station in less than a half hour after its first signal.

For subsequent transmissions, the Paris central would transmit the frequency directly to the mobile base to reduce the time involved.

Direction-finding of the suspect frequency: **instantaneous**

Transmission from Paris to the mobile base, visual display of the frequency, dispatch of vehicles: **5 minutes**

If the clandestine operator is working inside the city, he is localised within 10 minutes, or 15 minutes after first signal

If transmissions become regular, the mobile base itself monitors the frequency and direction-finding is reduced to 10 minutes.

It is likely that by the spring of 1944 the Germans were using a completely automated direction-finding system, even in the vehicles. This was achieved by a cathode-ray screen. With this system, it is very likely that the 3-second acknowledgement transmission from the clandestine operator to the home station would have given an azimuth with an approximation of about 5 degrees. This would have enabled localisation within a circle of a radius of half a mile.

But no automation, however advanced, would reduce the length of the final closing-in with the field-strength

monitor. This might have lasted a long time in a city and thereby risked attracting the attention of the lookout or guards who surrounded the radio operator whenever feasible.

By establishing 5 minutes as the maximum for a transmission on a given frequency, the SOE gave its radio operators the greatest chance to avoid capture.

Transmission length had certainly not been determined by mere estimation. Secret documents which were distributed to the clandestine operators in 1943, used for this study, prove that the penetration agents of the Intelligence Service and the Service des Renseignements were completely up-to-date on the entire German disposition from December 1942, even knowing the licence-plate numbers of the reconnaissance cars.

German detection methods had made decisive progress in two years. In 1941 and 1942, the localisation of a clandestine station was extremely difficult. It could only be carried out if the operator transmitted on the same days of the week, from the same site, and on the same frequency during several consecutive hours. Direction-finding operations were not yet automatic, and panoramic reception was nonexistent. The scanning of all usable frequencies was necessarily very slow and left substantial gaps.

In addition, during the final approach, each Gestapo agent had to hide a heavy suitcase containing a receiver with a loop aerial under his coat. A Tirolean cap or Basque beret tilting down over his ear just barely hid an earphone. Their general posture aroused the curiosity of even the most naïve of passers-by.

The arrest of a radio operator thus often required long months of continual surveillance. The operation was complicated by the fact that if a clandestine operator was spotted in the unoccupied zone of France (controlled by Vichy), the Germans could only signal the suspect frequency to the French radio control group at Hauterive near Vichy. The latter promised to look into the matter, but secretly warned the clandestine station to move as quickly as possible, and then supplied the Germans with an almost completely false position.

(The above extract is from Secret Warfare (titled Armement Clandestin in France, and Clandestine Operations in the USA), by Pierre Lorain, published in English by Orbis Publishing, London, 1983. English translation by David Kahn. Reprinted in MM by kind permission of Pierre Lorain and David Kahn. Text and drawings copyright © Pierre Lorain 1972, English language edition copyright © David Kahn 1983.)

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The logo for 'Morsum Magnificat' features a small crest with a crown and the words 'First of Morsum' above the main title 'Morsum Magnificat' in a stylized, gothic font.

The Motokey

by Lynn Burlingame N7CFO

I HAVE BEEN WORKING for the last year on a history of keyers and paddles. I consider a 'keyer' to be a mechanical or electrical keying device that is manipulated to send Morse code. Most early keyers started out as home-brew creations and were written up in ham magazines of the day. Some went into production. The earliest keyer that I can find that meets this definition is the Motokey, manufactured by Howard Mason of Seattle, Washington. The only mention of it was in an April 1939 *QST* article, as follows (they wrongly spelled the name):

New Keying Device

Dashes, as well as dots are formed automatically by the Moto-Key, a new keying device which fits in between the semi-automatic key or 'bug' and the fully automatic tape transmitter.

The Moto-Key mechanism includes a 100-volt AC induction motor which is geared through suitable speed-changing cones to a spindle carrying two pairs of friction discs. Associated with these discs or clutches are two cams, one for sending dots and spaces and one for sending dashes and spaces.

One or other of these cams is released to revolve by pressing the operating lever to the left or to the right. Either cam will continue to revolve and repeat its proper-length dots or dashes and spaces so long as the lever is held over and will continue to revolve to complete its cycle after the lever has been released. An interlock prevents one cam from releasing until the other has finished its cycle.

It is not necessary to hold the lever over for the entire duration of a dot or dash; an instantaneous contact will release either. The human element enters only in spacing. While it is impossible to run characters together by cutting spaces too short, the space lengths in other respects are controlled by the operator. Speed is at an enforced even rate adjustable from approximately 18 to 40 words per minute.

The Moto-Key is manufactured and sold by Howard F. Mason, Seattle, Wash.

QST, April 1939

Motokey is Different

The instructions for using this instrument, headed 'Learning To Send with the Motokey', read as follows:

'Motokey is different. Proficiency and skill can be gained with it most quickly by first discarding old ideas about "brass-pounding" and starting anew.

The main difference is this; while other keys use hand power for operating and closing the contacts, Motokey does this with motor power. The operator merely works the controls. It is a modern sending machine.

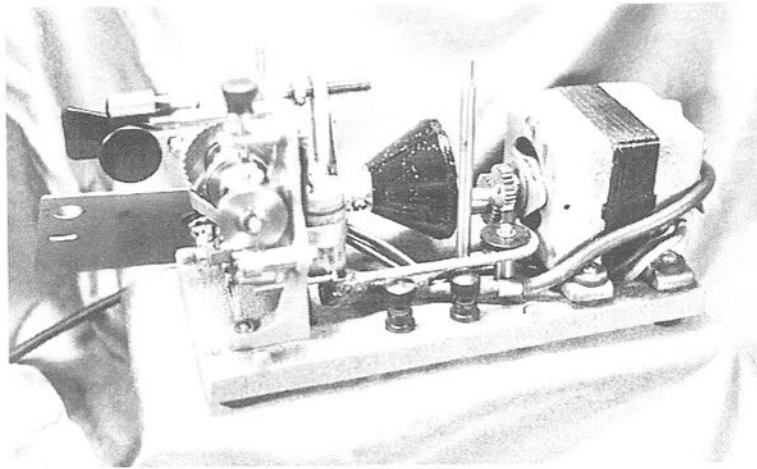
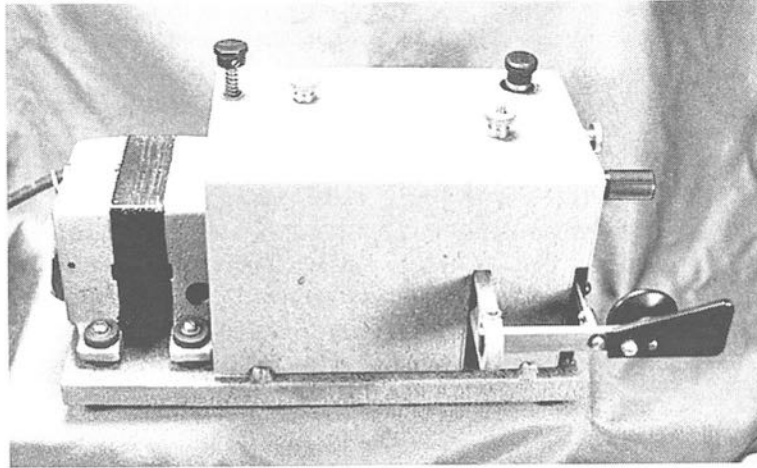
Let us compare Motokey with an ordinary key (*see table below*).

Practice First

'With Motokey all parts of a letter are determined mechanically, appearing as they would from a tape; only the spaces between words and letters are determined manually.

Remember when you first learned to send on a straight key? It took a good many hours of practice. Then it took more practice yet to learn how to handle a "bug". It will require a few additional hours to master Motokey. If you are already a fairly fast operator, and have a good sense of what constitutes proper spacing and timing, whether you've used a "bug" or not, you should be able to put

ORDINARY KEY	MOTOKEY
Dot lever must be held over for entire duration of dot. If released too soon, dot will be clipped	The quickest impulse gives a perfect dot. Dots cannot be clipped
Dots may run together if lever is pushed too lightly	If lever is pushed hard enough to make a dot, it will be a perfect one. If too light, nothing happens
Dots may be set too fast in relative proportion to dashes	Dots and dashes always timed and spaced correctly
Individual finger impulses required for each of the dashes	Hold over lever for as many dashes as required
Space between dashes will vary as it is determined manually	Space between dashes is mechanically timed in proper relation to the rest of the sending
Sending may be uneven or jerky	Sending is at an enforced even rate; the contacting mechanism is motor driven
Contacts may open slowly on dash side, causing arcing	Contacts open quickly on both dots and dashes. Arcing reduced
Sending affected by motion of ship	Sending not affected by motion of ship
Continuous dots or dashes not available for standby or for adjusting transmitter	Continuous dots or dashes not available for standby or for adjusting transmitter



The Motokey, 1939, external and internal views

Photos/Collection: Lynn Burlingame

Motokey on the air on traffic after about eight or ten hours of buzzer practice.

With your Motokey connected to a couple of dry cells, a buzzer, and a pair of phones, start the motor and begin. Set the speed control for the lowest speed, by turning the speed control knob to the left as far as it will go.

After a little practice you will notice several things that are different from what you have been used to. It will seem that there is a time lag between depressing the lever and the resultant signal. There is, because the machine sends the space before it sends the dot or dash.'

Common Irregularities Eliminated

'It seems that all operators have irregularities in their sending that may cause some trouble in ironing out. It is common for operators to unduly lengthen the dash of the "D" in "DE", the second dash of a "G", the last dash of a "Y", and others. Some lengthen the last dash of a letter when it precedes a letter beginning with dots, such as the "O" of "OFF", the "M" of "MFD", etc.

This you cannot do on Motokey. In fact Motokey is in itself such a good teacher of code that if you try a straight key after you've mastered Motokey you will find yourself sending practically perfect code. You will also note, in practising, that no matter how hard you try to run a dot and dash together, the interlock will hold back and not send the dash before the dot and proper space has been sent, and similarly for a dash and dot.'

Concentrate on Spacing

'You will find that you can disregard

entirely the length of dashes and dots, and concentrate on letter spacing and word spacing. The popular idea that the telegraph code consists of dots and dashes is not entirely correct. It consists of dots, dashes, and spaces.

Remember that only the quickest impulse releases the mechanism for a dot or dash and you can then quickly get over on the other side for the next dot or dash, which will be held by the interlock until the proper moment. For the interlock to function right, you must crowd your sending somewhat, that is, send at a speed a little faster than that for which the machine is set.

You will find that you must send along at a steady rate. This is something new and must be acquired, but it gives a wonderful evenness to your sending.'

Howard Mason

At the time of production Howard Mason was employed by the Puget Sound Naval Shipyard in Bremerton, Washington. He designed and built the Motokey at his home. The aluminium base was cast at a foundry in Ballard, Washington, and he did all the machine work on the rest of the key. He purchased the gears from the Boston Key Company.

In fact, there were only three Motokeys made. The first was sold to a man in Bremerton, as a result of the article in *QST*. The second was sold to me, and Howard still has the third.

To say that Howard Mason led an interesting life would be a gross understatement! He was born in Indiana, and

continued on page 44

WHEN THE FATEFUL campaign of France ended in the disaster of June 1940, the French 'SR' (Espionage and counter-espionage sections – see below*) was intact and its cypher department, headed by Colonel (later General) Bertrand was secretly installed in an old castle near Uzès in the Rhone valley since the Germans had been ill-advised enough not to occupy the whole French territory.

This department was considered the most important by the SIS and a permanent clandestine secure radio link was established between Uzès and Bletchley Park as soon as an armistice had been signed between France and Germany.

The French 'Y' service (which intercepted German HF and landline transmissions throughout occupied France) was particularly busy with the help of eminent Polish mathematicians and cryptanalysts rescued from the Germans at the last moment. Their job was the decryption of intercepted 'Enigma' messages and the transmission of the contents direct to Bletchley Park (BP), where Bertrand had sent some French cryptologist officers when the collapse of France was imminent.

Secure Link

Ironically, the link between Uzès and BP was kept secure thanks to copies of German 'Enigma' machines manufactured in France and the UK at the beginning of the war after the invasion of

Theory and Practice are a World Apart

by Pierre Lorain F2WL

To complement the extract from his book *Secret Warfare*, printed elsewhere in this issue, Pierre Lorain has sent *MM* the following true story about a Gestapo D/F expedition into Vichy France with orders to intercept, locate and destroy an important clandestine radio station sending vital information to London. Pierre learned of this operation only recently from his friend Tony, F3DM. It is, he says, "first hand information"

Poland. The volume of radio traffic from Uzès was very large, and the risk of interception and location quite high indeed. However, naively, the Germans had left the detection and location of all clandestine stations operating from the Free Zone (i.e., Vichy France) to the French governmental interception service at Hauterive (Allier).

This service maddened the Germans with its 'total inefficiency'. True, radio D/Fs were dutifully reported to the German Armistice Commission, but with false bearings. In the meantime, discreet messages were forwarded to the 'offenders' to be more careful in the future.

Destroy Immediately...

But nothing much could be done for Bertrand's link which had to be kept going ceaselessly, day after day, with high power transmitters. Their intense activity was of course monitored by the D/F stations in Germany; they 'localised' a large triangle in Vichy France near the Massif Central, but nothing definite.

Mobile D/F vans had to be sent to the Free Zone for an accurate location. All messages proving impermeable to any cryptanalysis, the current order was then to 'intercept, locate and destroy immediately.'

The French authorities were then faced with a German demand to introduce several D/F lorries into the Free Zone. We could only protest at first, telling them that our own vans were good enough for such a job; but at last we had to submit.

False Bearing

The Germans gave us the numbers of their vehicle registration plates (which proved extremely useful since warnings could be sent to all clandestine stations) and accepted that a French police officer would join them aboard one of their lorries. The Vichy police directorate had the bright idea to order our good old Tony, F3DM, (see MM42, p.16) to ac-

company the Gestapo party, guide them through the sinuous roads of the Massif Central, and report what he could to his chief in Vichy as soon as possible.

After Hauterive Control had given a first false bearing, a hundred miles north of Uzès, off went the little D/F party in search of the mysterious signals. Tony then made friends in the car with a German who was a police officer stationed in Berlin before the war.

Sometimes they talked shop together in French, and Tony learned that the German D/F service at that time was far from efficient with old radio sets. (It was to become really dangerous in 1943–44 with the advent of new high-sensitivity panoramic receivers). So Tony did his best to send the little convoy on a wild goose chase. One day, over a bad mountain road, the car in which Tony was seated upturned in a ditch. One German was badly wounded, Tony was unhurt and succeeded in stealing parts of the goniometric loop.

Arrest Imminent

The hunt at last came to an end, the D/F cars being unable to find a third base to the estimated triangle. The German Police Inspector briefly warned Tony that he was now suspected by the Gestapo team and that his arrest would be imminent. Tony hastily decamped and the German party recrossed the demarcation line of the Free Zone empty-handed.

Thus, Bertrand's centre was given a respite until November 1942. When the information came that the Germans were about to invade the whole French territory, Bertrand had just time to close down

his station, and evacuate his archives and personnel to Algiers in North Africa.

So all is well that ends well, but the French 'Y' service had to be reorganised on a fully clandestine basis. A highly dangerous mission, all the more so since the German D/F services were becoming really sophisticated.

However, even with up-to-date D/F apparatus, the capture of a clandestine operator is not as simple as that: theory and practice are a world apart... espe-

cially when someone like Tony sets out to frustrate the system!

Reference

[*] SR – 'Service de Renseignements'. The official pre-war French Intelligence agency. Exclusively staffed by French Army regulars, with its HQ in the Free Zone from June 1940 until 11 November 1942. After that date, part in France and part in Algiers. Worked in close cooperation with the SIS and the OSS.

MM

The Motokey

continued from page 41

after the death of his father his family moved to Eagle Harbor, Washington, when he was five years old. He had an early interest in radio and was licensed as an amateur radio operator (7BK) in 1917. In the early 1920s he worked on the American Radio Relay League Staff and knew Hiram Percy Maxim.

He served as a radio operator in the 1927 Detroit News Arctic Expedition. During this expedition he operated station KFZG from Barrow, Alaska, in support of Arctic overflights. (See 'An Arctic Adventure', by Howard F. Mason, *QST*, October 1927.)

He also served with Richard Byrd as one of five radio operators in the 1928–1930 'Little America' Antarctic expedition. (See 'Radio on the Byrd Expedition', *QST*, December 1928.)

In 1994, Howard Mason donated to me the Kilbourne Clark key he used at station WFA in Little America. I have designated it the 'WFA Key' and have designed a special certificate to confirm contacts made on the amateur bands using this historical instrument. Certificate number 1 (which went to my father, N7EYO) is illustrated on the back cover of this issue of *MM*.

(Reprinted from N7CFO Keyletter #11, with additional material provided by the author)

IMPORTANT – MM BOOKSHELF

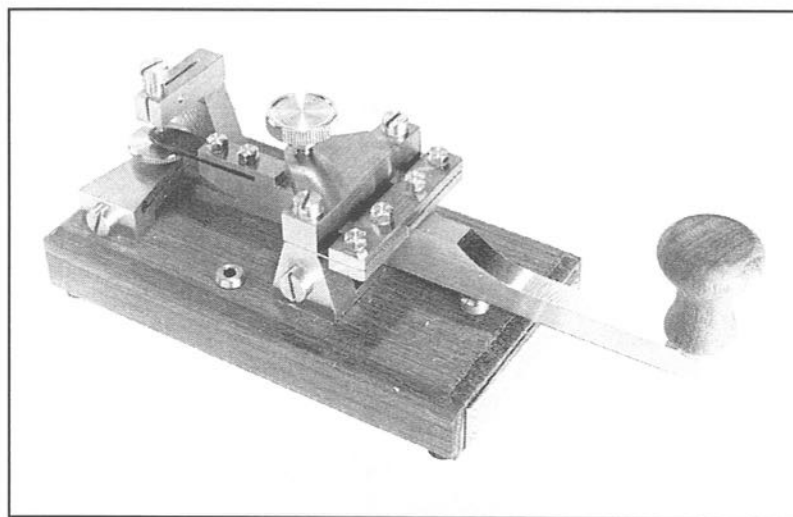
All postal rates in the UK were increased with effect from 8 July 1996. The increases were only a few pence for the lighter weights, but the mailing costs of our heavier books have gone up by between 25p and 50p within the UK, and proportionately overseas.

We are holding existing book prices until the end of September, but for orders received after that date, the prices of books marked with an (*) on page 18 will be **increased by £0.25 for UK addresses and by £0.35 to Eur/Sur addresses.**

The CW Centre! ©

This month I am commencing a series of adverts illustrating the keys I stock. The range now includes keys and paddles by Bencher, DK1WE, Peter Jones, R A Kent and Schurr plus, of course, the legendary ...

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Your Letters

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

Key for Buzzer Signal Training

The unknown long-arm key on page 40 of MM46 is the same type of key as is fitted to the Buzzer Signal Training c.1930s. I have a similar unit made by Gamages, London, where the key is on one base and the buzzer and battery is on another, both bases being joined together by brass strips secured by terminal posts.

*Wyn Davies
Brymbo, Wrecsam, Wales*

Memory of Centennial of First Morse Message

The report on the home of Samuel F.B. Morse in Poughkeepsie, NY, in MM46 (page 7), brought back a childhood memory which I thought I would share with you.

In 1944 I was a kid growing up in an industrial section of East Baltimore not far from the Mount Claire shops of the Baltimore and Ohio Railroad. Morse's original (1844) telegraph line ran from the little station at the shop along the right of way of the railroad to Washington, DC, and terminated at the Capitol.

Even though it was wartime the importance of his accomplishment was recognised and the transmission of the first message was repeated on the centennial date. My school was nearby and a group

of students were allowed to attend the event.

Replicas of the original equipment were used for the demonstration and I can still remember what a profound effect seeing this re-enactment of the dawn of electronic communication had on me. It kindled my interest in science and is responsible for a lifelong interest in CW which has enriched my life through contacts with a variety of people who enjoy a common interest in this remarkable mode of communication.

*Harvey M. Solomon, MD, KQ0A
Atlanta, Georgia, USA*

Lucas Key Identified

Congratulations MM for solving another mystery! I have long pondered the origin of a beautifully made little brass key mounted on an octagonal ebonite base which I found in a local antique/junk shop last year.

Inside the back cover of MM46 I found it, at the top of Leslie Dixon's 1924 catalogue of WWI surplus items. It is an Army pattern Lucas key, Fig. 51KD.

In the last month I have found two further keys illustrated on the same page. These are similar to fig 51KBS, RAF No.1 key. One was complete, and the other had parts missing. Both were cov-

ered with years of grime but have restored well and are working nicely. I find the whole subject of keys absolutely fascinating.

I'm hoping you have further old catalogue pages you can publish similar to this one, and the one from Economic Electric (1922) shown on the back cover of MM37.

Jack Barker
Surbiton, Surrey

(We know that advertisements, catalogue pages and instruction sheets, illustrating keys from the past are popular with readers, and we are always pleased to print them when we have the opportunity. However, we do need help in finding more! If any reader comes across such material please send it, or a good, clear photocopy, to MM. If the text is not in the English language, a translation would be appreciated. If you send original material we will be happy to return it to you if required. – Ed.)

Lambert's Key

The object shown at the top of page 41 of MM46 is a Lambert's Discharge Key, designed to have a long leakage path to earth and thus a very high insulation

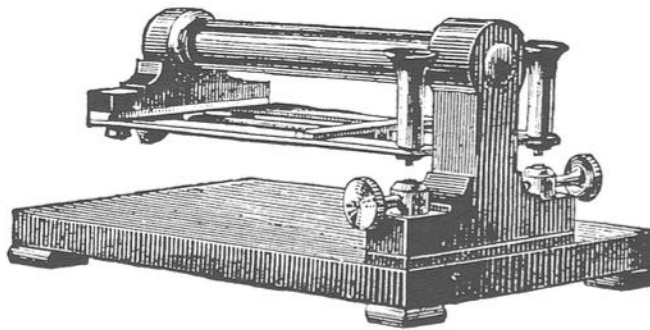
resistance. It was used in the submarine cable service and at cable manufacturers premises for insulation testing.

As good cables would have an insulation resistance of many megohms it was important that leakage to earth in the test set itself did not invalidate the results. It was not used for sending traffic, although other types of key could be used both for testing and communicating with the distant terminal station using 'cablecode'. Sometimes these keys can be found in junk shops and look like two Morse keys on one base.

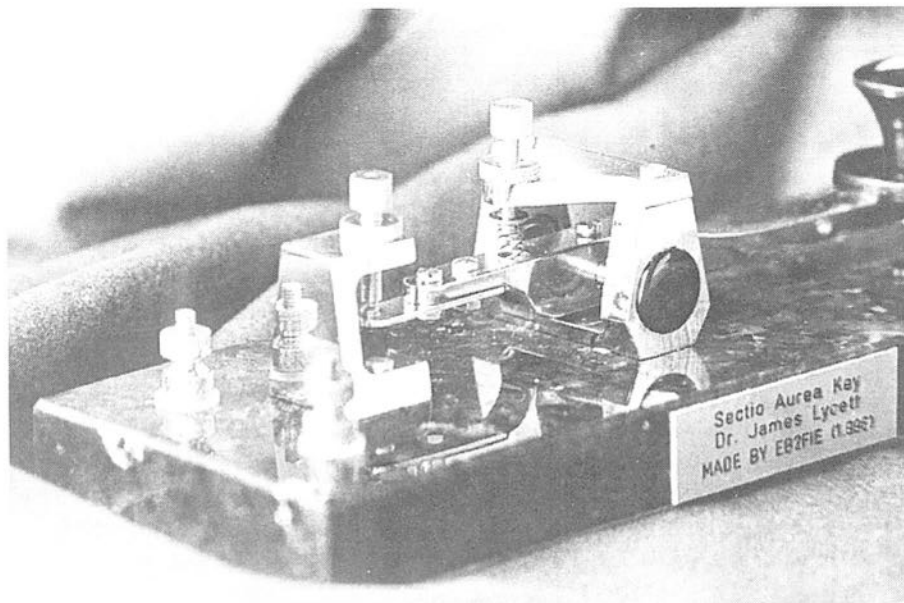
Cablecode was a modified Morse with equal length elements and two polarities to distinguish 'dot' (negative to line) from 'dash' (equal length to dot but positive to line).

We have examples of the above and many other types of key, plus working Morse inkers, needle instruments, two-tone transmitters, automatic Morse tape readers, and much else of interest to MM readers at the Porthcurno Telegraph Museum.

John Packer G3NRD
Hon Curator
Porthcurno Telegraph Museum
Porthcurno, Cornwall



*Lambert's
Discharge Key.
(From Handbook of
Electrical Testing by
H.R.Kempe, 1908)*



Sectio Aurea Key

Thank you and Dr Jim Lycett for permission to publish details of the Golden Section Key in the Spanish magazine *CQ Radio Amateur*. The article 'El manipulador dorado' will be published in September or October this year, and photocopies of the engineering drawings will be made available for Spanish readers at nominal cost.

I enclose a photo of this excellent key which I have made with the guidance of MM27, page 12. It is quite easy

Sectio Aurea Key made by EB2FIE

to make, but it is necessary to work accurately and with care. In my case, it was made in a 6th floor flat and not in a workshop.

I used a hacksaw, a pair of files, screw thread taps, a portable drill, a vernier calliper, and plenty of time and patience. The key is amazing, it works smoothly; it is very sensitive, and very quiet. It looks fine and it works fine.

*Jesus Lahidalga Serna EB2FIE
Baracaldo, Spain*

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Bygones**

*The vintage
wireless
magazine*

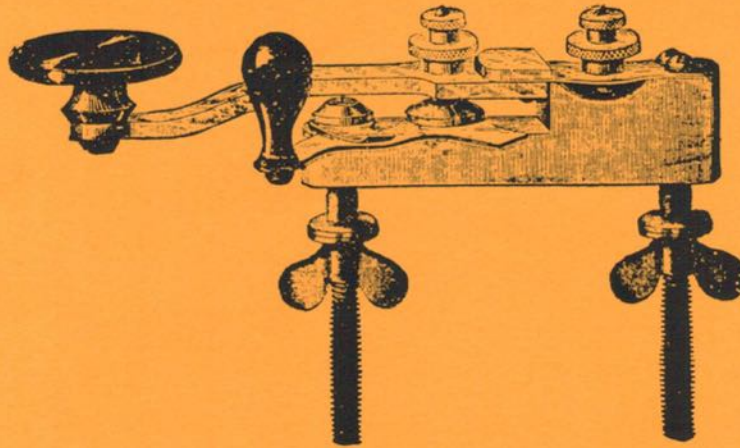
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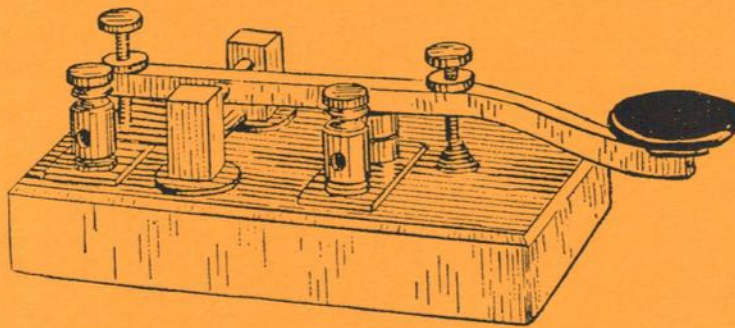
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Early Keys



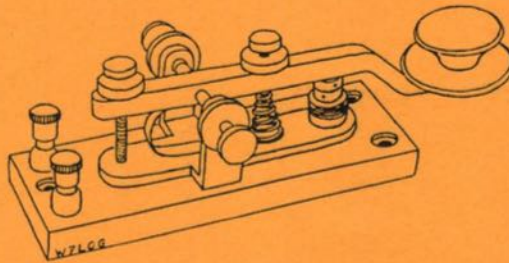
The 'Steiner' key. From *American Telegraphy* by Wm. Maver, Jnr., USA 1899



The Central Scientific Co's 'Boston' pattern wireless key. In construction, all metal parts except the steel pins of the centre bearings are of solid brass. The key is mounted on a polished marble base $3\frac{1}{2} \times 6$ in. As shown [?] the current from the lever is not conducted through the bearings but is carried by a heavy conductor direct to the binding post base.

Current capacity of key, 10 to 50 amperes.
From *Hawkins Electrical Guide*, USA 1917

The WFA Key



This is to certify that

Don Burlingame, N7EYO

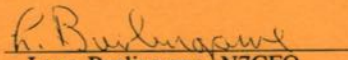
has completed a two way amateur radio contact with the WFA key on December 31, 1994. The WFA key was manufactured by the Kilbourne Clark company in Seattle, Washington, and was used at "Little America" on the first Byrd Antarctic expedition. It was owned by Howard Mason who donated it to the N7CFO key collection in 1994.

Howard Mason served with Richard Byrd as a radio operator on the 1928-1930 "Little America" Antarctic expedition. For further information on this expedition see the book *Little America* by Richard E. Byrd, "Radio On The Byrd Expedition", *QST*, December, 1928 and the August, 1930 issue of National Geographic magazine.

Mason started his career at age 15 as second radio operator on the steamer Alaska in 1916. He worked on the American Radio Relay League staff in the early 1920's and was licensed as amateur radio operator 7BK. He was a radio operator on the 1927 Detroit News Wilkins Arctic Expedition and operated station KFZG from Barrow, Alaska in support of Arctic overflights. He wrote an article, "An Arctic Adventure", about this experience in the October 1927 issue of *QST*.

Awarded December 31, 1994

Certificate number 1


Lynn Burlingame, N7CFO

*Certificate sent by N7CFO to confirm contacts made with the historic WFA Key
(see article 'The Motokey' in this issue)*