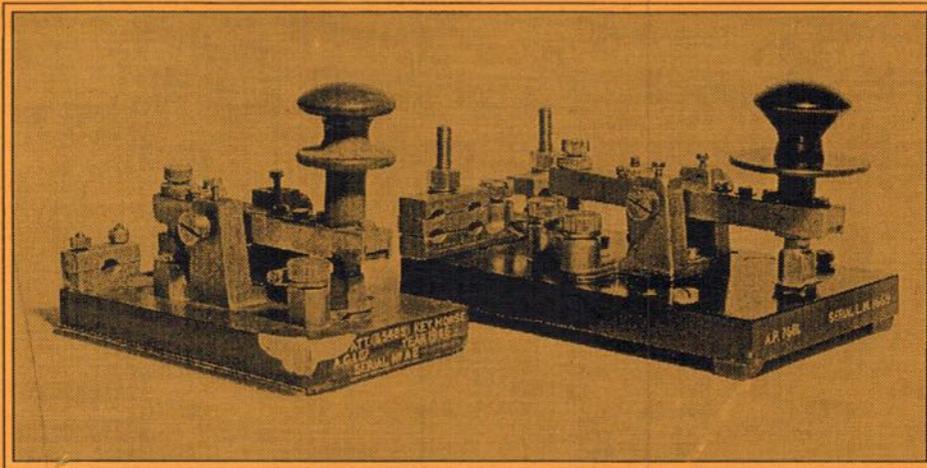


Flying
the flag
for
Morse

Number 32 – February 1994

Morsum Magnificat

The Morse Magazine



*Admiralty Pattern Keys
AP 65485 and AP 7681*



Flying
the flag
for
Morse

Morsum Magnificat

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

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ON OUR FRONT COVER

Admiralty Pattern keys, 65485 made by AGI Ltd dated 1946 (left), and 7681 (right). Jim Lycett G0MSZ writes: 'Apart from the physical size being a little smaller, the 65485 is similar in construction to the 7681. The emergence of another model may well go some way in clearing the confusion regarding dating of the Admiralty Pattern keys, as several retired operators have recognised the style of the AP 7681 as being similar to the one they used in WWII. Other features of the AP 65485 include a brownish laminated ebonite base, a brown knob integrated with a skirt, and a brass plate slightly larger than the base, enabling the key to slide out of a clamp, etc.'

Collection/photo: Jim Lycett

Comment

A SPECIALIST MAGAZINE like *Morsum Magnificat* relies very much on its readers to 'spread the word' about it, and hopefully to encourage other enthusiasts to become subscribers. I think that we are particularly lucky to have such a dedicated band of followers, who promote and persuade others to the cause. Thank you! Our subscription list continues to grow, slowly but steadily, which is good not only for the magazine but for the sustained health of Morse code.

Despite what some detractors say, Morse does still have a place, even in these days of increasingly clever communications technology. Keep at it!

With our new bi-monthly publication schedule, we aim to post the magazine out around about the 25th of the month, the first issue in each year being at the end of February. This works very well until we come to the issue due out in December, when of course it coincides with Christmas – not a good time to be committing three or more mailbags full of magazines to the mercies of the postal system.

December 1993 was the first time this happened following the change to a bi-monthly schedule, and I decided it would be best to delay publication of MM31 until early January. In the end, this meant that the issue was about three weeks later than the 'target' date, which was not a good thing. For 1994, we plan to get MM37 printed before Christmas, and mail it out between Christmas and the New Year. By that time, the Christmas rush will have subsided, and the post should be back to normal. At least, we hope so!

Geoff Arnold
G3GSR

MM32 – February 1994

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Operation Maquis 1994

TO COMMEMORATE clandestine radio links between France and England 50 years ago in WWII, a number of French special stations will be on the air during the weekend 11–12 June 1994 (nine reported to date, with more proposed including one in Belgium). They will be using low power wartime equipment on the 40m amateur band and modern equipment on other bands. There will be special QSL cards and possibly a diploma available.

Radio amateurs in England are invited to set up special event stations to take part in this important project to honour the memory of those radio operators who died in the war. Those interested in participating, using either wartime or modern equipment, are invited to contact Jean-Jacques Legrand F5SMR, 11 chemin de Bonneau, Le Mesnil, 45110 Germigny Des Pres, France.

Apart from individual amateurs, this could be an exciting event for radio clubs which, with good publicity, might attract the interest of people in their locality who had experience of clandestine operations during the war. *MM* would be interested to hear from any clubs or individuals about their experiences in this project after the event.

In our next issue (*MM33*), we hope to have more information on Operation Maquis 1994, including the callsigns of some of the stations participating. There

will also be an article by Pat Hawker, G3VA, describing some of the clandestine operations in France, and his own experiences at the Liberation of Paris when he delivered a special message for Charles de Gaulle which had failed to arrive by radio.

EUCW Continues to Grow

THE EUROPEAN CW ASSOCIATION has received applications for membership from two more CW clubs, namely The Helvetia Telegraphy Club (HTC) and the Saar Lorraine DX Club (SL-DX Club).

HTC was originally founded in 1980 as the Radio Telegrafie High Speed Club (HSC-Schweiz), and changed its name to The Helvetia Telegraphy Club on 27 March 1993. The club welcomes SWL members, and is a member of Switzerland's national radio society, USKA. It runs a club station, HB9HC, organises telegraphy courses, and promotes home building of amateur radio products.

Morse lessons are transmitted every Monday at 1900 hours (local time) on 3.576MHz. Speeds are 40, 60, 80, 100, 120 and 140 letters per minute, followed by check-lists. Other practice transmissions, at 40, 60 and 80 lpm, are at 2030 hours (local time), on 144.250MHz FM. The club station is QRV for Newcomer and QRP try-outs on Thursday evenings at 2030 hours (local time) on 3.557MHz; and the club is active on-the-air on the

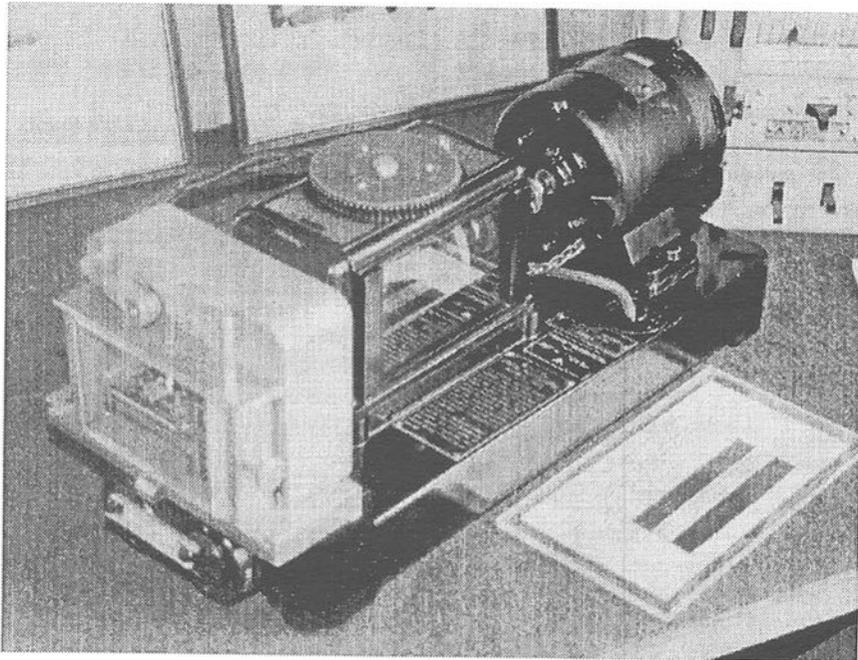


Photo: Gerry Farrance

Exhibit at Wellesbourne Wartime Museum. Wheatstone automatic Morse transmitter No.3, used at RAF Compton Bassett at one time. Made by The Great Northern Telegraph Co., speed 13-250 wpm

first Sunday of each month at 2000 hours (local time) on 3.576MHz.

The Saar Lorraine DX Club currently has about 55 members from different European countries. It has an annual contest in September, a News Bulletin called SLDXC and an Awards programme. The club's call is F6KLS and its contest call is TM3M.

(Information from EUCW Bulletin 1993/4)

**Museums of Interest
WARWICKSHIRE, ENGLAND
Wellesbourne Wartime Museum**

THIS SMALL MUSEUM is located in an underground Battle Headquarters built

for key personnel at RAF Wellesbourne Mountford in WWII. It houses the growing collection of aircraft archaeology and wartime memorabilia of the Wellesbourne Aviation Group.

There are some radio exhibits, such as the T.1154/R.1155, R.1132A, R.1475, etc. At present they have only one Morse key, an RAF 'bathtub' type, but other RAF keys, donated or on loan, would be very welcome.

The museum is located approximately 6 miles east of Stratford upon Avon, and is open on Sundays only from 10 a.m. to 4 p.m. Car parking is free.

(Information from Gerry Farrance G3KPT, Great Barr, Birmingham)

India Hamvention - 94

FOREIGN AMATEURS and SWLs are invited to attend the All India Amateur Radio Convention in Bangalore on 9-10 April 1994.

A detailed brochure and registration form may be obtained from the General Convenor, Nagesh Upadhyaya VU2NUD, 607 ISRO Layout, Bangalore - 78, India.

(Information from John Walder-Davis G0KCA, Broadstairs, Kent)

Morse Flip Cards

MORSE TEACHERS or those just learning the code may be interested in these $3\frac{3}{8} \times 2\frac{3}{8}$ in cards, housed in a clear plastic wallet, which have letters and numerals printed on one side and the corresponding Morse symbol on the other. The cards could be helpful for those at the initial learning stage to carry in the pocket to review the code whenever the opportunity presents itself. The only caution necessary is to ignore the advice given to create mnemonics to help remember the symbols, since these will cause unnecessary delays in the recognition process, and will need to be consciously unlearned, as soon as reading speeds above 5-8 wpm are contemplated.

As produced at present, the cards do not cover the punctuation and other symbols required for the amateur Morse test, but the makers have expressed an interest in the possibility of producing a pack of Flip Cards specifically designed to meet the needs of the test.

Morse Flip Cards are available through chandlers and marine book-sellers, price £2.75 per pack, or they can

be obtained direct from the publishers, Flip Cards, Longheadland, Ombersley, Worcs WR9 0DU. Tel: 0905 620000.

Amateur Radio Licences in Iceland

THREE CLASSES, A, B, and C, have access to the HF, VHF and UHF bands, while class T (without a Morse requirement) has access only to the VHF and UHF bands. The Morse requirement for HF operation is 13 wpm. 'A' licensees are permitted all modes on VHF and UHF but are restricted to CW only on HF. After six months operation, and good conduct, the licence is upgraded to 'B', allowing 200W (instead of 50W) input, and voice modes may be used on HF.

The 'C' licence (500W input), requires at least a year of class 'B' operation, a C-class exam, and a 16 wpm Morse test.

(Information from Reynir H. Stefansson, Reydarfirdi, Iceland)

GMDSS Frustration

An article in *Ocean Voice*, the journal of INMARSAT, January 1994, the maritime satellite communications organisation, reports on the experiences of a Singapore based shipping company installing GMDSS in its ships.

International Maritime Carriers (IMC) manages 36 ships and has a target of 47-48 by the middle of 1994. Their offices in Singapore are equipped with computerised accounting and voyage estimating systems, and all of their ships are fitted with Inmarsat-A or Inmarsat-C terminals.

However, although the aim is computer-to-computer data transfer via satcom this has not yet been achieved.

About 40 per cent of the vessels have computers which are not yet in use. They are being left on board the ships for six to eight months to allow crews to familiarise themselves with them gradually.

Senior shipboard staff are given a few days 'hands-on' experience in the office before joining a vessel. There is, however, says the article, a sense of frustration at the slow process towards the IT culture. Many in the industry feel that, given the increasing use of electronics systems on board for operational purposes, there is a need to combine the roles of radio officer and electrical officer. This would result in there being one person on board who would look after both the electrical and electronic equipment.

Despite this need, IMC's fleet manager, B.K. Chhabra, says there is a lack of suitably qualified personnel for such a task, 'at least, not people who are prepared to make a career at sea.'

As a mid-term solution, he points to duplication of equipment – at least for GMDSS compatibility. Nevertheless, he is still to be convinced about the reliability of some modern electronic equipment. 'We took delivery of a fully compatible GMDSS ship in January – but we are retaining the radio officer even though we are allowed to sail without one.'

Chhabra says it is imperative for ship operators that their crew get the right kind of training. IMC accordingly subsidises the cost of initial or refresher courses for personnel at Singapore Polytechnic to supplement their basic training prior to joining company ships. It is planning for its own future by continu-

ing to take and train cadets on board ship including, unusually for today, radio cadets.

(The original article in Ocean Voice was drawn to the attention of MM by Peter Hamblett, Bewdley, Worcs.)

Brazilian Party

Each year, the Clube de CW Águias do Sul (CWAS) promotes a fraternising party during the Brazilian Week of Communications, which this year will be held from May 1st to 8th inclusive. For 1994, CWAS has decided to invite other EUCW member-clubs to share in this event.

A small (160 x 215mm) Award is offered to every radio amateur (including SWLs) who during the week works (CW only) at least 30 different contacts plus 10 different South American stations. The same station can be worked again in different bands.

The event runs from 0000 UTC May 1 to 2400 UTC May 8. Mail your logs plus two IRCs to CWAS, PO Box 27, 88010-970 Florianópolis SC, Brasil, to arrive by 15 June 1994.

For Your Diary

LONDON Amateur Radio & Computer Show, **10am – 5pm, Saturday/Sunday, March 12/13**, at the **Lee Valley Leisure Centre**, Picketts Lock Lane, Edmonton, London N9.

YEOVIL QRP Convention, **from 9am, Sunday, May 8**, at the **Preston Centre**, Monks Dale, Yeovil, Somerset.

BIRMINGHAM National Vintage Communications Fair, **10.30am – 5pm, Sunday, May 15**, at the **National Exhibition Centre**.

I WAS BORN AT INDIAN GAP, TEXAS, on 3 July 1901. I visited the little place a few years ago and found the business buildings and schools all boarded up. The small building where my father, around 1900, was operating a small general merchandise store was filled with hay. It was very depressing, to say the least. Many small communities have just about disappeared, but I suppose that is true in other places too.

Early on, we moved to a slightly larger town (Goldthwaite) in central Texas, where I was reared as a youngster.

When I was about 17 years old, during WWI, I became employed as an apprentice telegraph operator at the local railway station along with eleven others.

There was a shortage of telegraphers during the war so the station agent took it upon himself to teach a class. About the time we were qualified, the war ended and all but two or three of us dropped out. I went on, however, to begin work as a telegraph operator on the Santa Fe Railroad, working mostly way stations along the line for a year or two.

Relay Office

One day, I was called upon to work the midnight to 8 am shift at the larger telegraph office at Temple, which was division headquarters. The office was called a 'relay' office because we relayed messages between the different divisions, etc., and the duties required considerable skills as a telegrapher.

I was lucky and managed to finish the night out without getting into too much trouble. When the Chief Operator came in the next morning he checked around and decided, I suppose, that I might be suitable material to become a regular operator in the relay office.

Thereupon, he asked me if I'd like to transfer there permanently – which I did; and working there for several years improved my skills as a telegrapher.

Move to the AP

In 1926, the Associated Press telegrapher at the local newspaper office asked me if I'd like to 'break in' on the AP press wire in order to prepare myself to work with the AP. I did so, and within

AP
Associated Press

Morse in the AP

by *Aubrey Keel KBOZE*

Formed in 1848 as a co-operative of New York's six leading newspapers, the Associated Press, in 1875, became the first press association to lease its own telegraph wire, 226 miles long, between New York and Washington. By 1923, it had 92 000 miles of wire, with nearly 1500 Morse operators, linking some 1200 AP members with 55 domestic and 27 foreign news bureaux. Aubrey Keel, KBOZE, was an AP telegrapher from 1926 to 1933, and he recalls the last few years of Morse in the AP before the coming of the Teletype.

a few weeks I was offered a position as a press operator in a new newspaper just started in West Texas. From that time on, I worked in all of the larger cities in Texas on the AP-serviced newspapers and those experiences helped me to become more proficient.

I worked longer at Fort Worth and started covering vacation and sick reliefs (on the side of course) for other telegraphers working for various companies. For example, I made vacation relief for the operator on the Consolidated Press wire. They sent nothing but market reports – lots of figures and fractions. That was a FAST wire, believe me, and I'd sweat blood sometimes.

Hot Wires

Another fast wire was a features wire filed out of Chicago (*Tribune*). The editor there would lay out eight hours work and tell the sender that if he could send it in seven hours everybody could go home – so he did. You didn't dare break.

Other hot wires were at brokerage houses where we took quotes and orders to sell or buy, etc. You had to be on your toes all the time. Frankly, I'd hate to tie myself down like that again – at the mercy of a fast sender – but I was young and didn't know any better then.

Fine Operators

Back to the AP. In Texas we had several Morse circuits. One was called the 'Collection wire' which was extended to the larger cities so they could exchange news stories. On that wire you not only received a good portion of the time, but if your office came up with a news story then you transmitted it. Some

of the 'Trunk' wires, though, filed out of New York City or Washington, were mostly receive all day long. There were some fine operators on these wires and they moved a lot of press copy each shift – all around the clock!

There were a few operators who used manual keying, but almost all of them used the semi-automatic key, usually a Vibroplex, although there were some other brands in those days. A manual operator would tire out pretty quickly if he had to send at a fast clip all day long. We didn't use any tape-generated Morse that I know of. We jumped from Morse telegraphy right into Teletype.

Market Wire

There was also the market wire, where they sent all the stock quotations. This was a pretty fast wire as they wanted to move the day's quotations out as quickly as possible. There was a demand from the various newspapers for fast service so they could make their deadlines, etc.

Starting immediately after the New York Stock Market closed, and all the trading information had been tabulated by our markets department in the NYC bureau, they started transmission of the cumulative quotations for the day. These figures included the number of shares sold or bought, low, high, closing prices and net change, etc.

At the receiving end we had a high stack of pads on which to fill in the figures as they were transmitted. I don't recall how many lines were on each form, but there must have been twenty or thirty. Each stock was listed alphabetically, but the sending operator did

not send the name of the stock itself.

Instead, each stock on each line carried a short code which indicated the line the quotes were to be filled in on. The first line would be 1A, which might indicate Abbott Inc., or a similar stock. The next line would be 1B, then 1C, etc.

As I recall, the sending operator did not repeat the '1' each time, after he had sent it once to indicate the pad to be filled. He'd send 1A, D, F, etc., filling in ONLY the stocks for which there had been transactions. After sending all the quotations for '1', he would go to 2A, B, etc., then 3A (or if nothing on A line, he would start with, say, 3F, etc. Thus, no time was lost in spelling out stock names which, of course, were already printed on the appropriate line.

Make no Errors!

There were 52 long pads (we called them books) – it took that many to list all the stocks at that time. If that system were followed today, there would be many more books since the number of stocks listed on the NY Stock Exchange is much higher now.

The sending operator was selected because he could really send fast – and they really didn't like any break-ins for a new start. On top of that, you had better be careful not to make any errors. There were a lot of readers who followed the market and they'd call into the newspaper (financial editor) to complain if they found an error.

We had one sending operator who was a real prima donna. If he was interrupted two or three times with a 'break' he'd fly off the handle and start sending even faster. The quality of his sending

would then deteriorate and he would get further breaks as a result. I've seen a time or two when the supervisor had to 'lift' him (he was so agitated) and put another sending operator in his place to finish the transmission.

What was needed was a fast, imperturbable, operator sending the list, enabling all the receiving operators to finish the task correctly and in good time.

Mainly Typed Copy

As for standards of accuracy, I don't recall that the AP set any standards; but the operators were required and expected to be proficient or they didn't last long. There would be complaints from the subscribers (newspaper editors) and you'd have to answer to the Chief in the Bureau.

As for copying by hand, I doubt that anyone could write legibly and fast enough to copy a news wire all day long. We produced typed report so the editor could look it over before sending it to the Linotype operator who set it in hot lead, etc. We did, however, copy the NY Stock quotations (above) and similar reports by hand – these were all figures and fractions.

We used American Morse (I never knew there was another code until I became a ham), and this was received on a sounder. American code still sounds funny to me on CW!

Phillips Code

We also used the Phillips Code. That was the only way we could move as much copy as we did in press wire work. Actually, the Morse itself was not sent at extremely high speed – I'd say around

A few examples of the Phillips Code

Bnv	benevolent
Boe	Bank of England
Bop	breach of promise
Br	British
Bv	believe
Cax	casualties
Cbi	covered by insurance
Cdn	Canadian
Chn	children
Fabid	filed a petition of bankruptcy
Potus	President of the United States
Srx	serious
Srxy	seriously
Subn	substitution
Sxnl	sensational
Tbc	tobacco
Td	Treasury Department

30 or 35 wpm – but we employed the Phillips Code to abbreviate many (but not all) of the words. Consequently, the man at the receiving end was typing out around 45/50 wpm. He had to be pretty good on the mill (typewriter) to keep up with a sender who used a lot of Phillips Code.

The Phillips Code was really designed for use by reporters as a sort of shorthand, but the telegraphers got onto it and it became standard practice to use it in the transmission of press items. Other services used it also, with some modifications. For instance, I used to make vacation reliefs at the large meat packing houses. They had some fast operators and they had their own brand of code, adapted from Phillips Code but somewhat different. You had to know

their 'code' in order to work their wires.

Other industries or types of work had their codes too. On the railroads a really proficient operator would use a bit of 'boxcar' code when he knew the receiving operator was up to decoding it, and I suspect that would also be true in the case of brokerages, oil pipe lines, etc.

Incidentally, we had an operator at the Austin, Texas, Capitol Building who took particular glee in sending a lot of Phillips Code, and getting some receiving operator to 'break' and ask for a GA (go-ahead). His name was Silliman Bell and we called him 'Codebook Bell'! He was a nice guy but he had a streak of wanting to put a person under the table. He knew the Phillips Code, forwards and backwards, and was an all-round good operator – he just wanted to show off a bit!

Office Arrangements

At the smaller newspapers, the press operator usually sat near the editor assigned to handle the wire copy. At the end of each page, the operator would simply place the copy on the editor's desk for him to peruse and determine what, if any, usage he would give it.

In the central offices (bureaux) there was usually a separate room for the AP telegraphers and editors, and a private office for the bureau chief. For example, in Dallas (Texas state bureau) there would be several editors and operators grouped near each other, across the desk, etc., so that copy could be handed over without getting up.

There might be other editors (not wire editors) at other desks around the room, composing stories which they handed

over to the wire editor for transmission on the appropriate circuits.

The press operators in the central bureaux would be sending most of the time, but occasionally they would be on the receiving end for incoming messages and story items.

AP Membership

Newspapers were not 'customers' of AP. They were elected to membership, and as members were required to offer the AP any and all stories developing in their city or area which might be of interest to readers in other cities.

Sometimes, but not often, a newspaper would be reluctant to release an 'exclusive' story and had to be prodded a little. Mostly, however, they responded to their responsibility of providing stories to the AP for other members to print.

Ringside Reporting

We used to have a telegraph operator at big events, such as World Series baseball, championship boxing matches, etc. A special circuit would be set up and we'd send a play-by-play or blow-by-blow description as dictated by a sports reporter sitting alongside.

The operators liked to get these assignments since they got them away from the humdrum of their regular job, and they could view the event as they worked! A little later on we did the same thing with a keyboard after Teletypes came into use. This was by land line. I don't recall any radio usage at that time.

What Made an Expert Telegrapher?

I believe becoming an expert tele-

grapher required a number of elements. He needed to be proficient on the 'mill' so he didn't have to struggle to keep up or catch up, etc.

He needed to be interested in becoming skilled in the art, and to learn through diversity by working all sorts of wires, press, brokerage, Western Union, etc. It was necessary to have the desire to become one of the best, and to take pride in doing a professional job whatever it was. It's fun to sit down and copy a fast sender who has a good 'fist'.

I don't recall that I had trouble in learning to use the bug. It's all right to put the weight out a bit in order to slow down the dots, but you don't want to overdo it. You want a dot to sound like a dot. It's better to keep the dashes and dots in proper ratio; as you increase your speed you can also speed up the dots.

A steady 30 wpm is rather rapid, but many operators were able to send good code at that speed all day when they became accustomed to it. I suspect that most press operators didn't maintain that speed in straight text, but they made up for it through use of the Phillips Code so the net result was something approaching 40 wpm in the amount of copy moved.

Personal Styles

Many operators had their own 'style' in forming the code, spacing between words, etc. Some sent almost perfect characters but there were many that had a 'code' of their own style. They probably thought they were sending perfectly good code but it could be difficult for the receiving operator to decipher.

One who comes to mind was my

boss when I first started. He was chief operator in Dallas and I was out on the 'line' at a small daily newspaper. He had a peculiar way of dividing some of the dots and dashes making the word sound different to that intended.

I recall that 'army' would sound like 'fimy' and that 'Texas' would sound like 'todas'. Boy! You had to watch and listen carefully in order to copy him and it was a real chore. On the other hand, there were many operators whose sending was much easier to copy.

Early on, when I was just a beginner in a relay office on the Santa Fe RR (see above), we had one old codger out at the end of the line who had been there forever. His fist was atrocious and hard to copy, and if you broke him once or twice he would simply stop sending and leave you sitting there.

Maybe an hour or two later, he would call in and we'd start again, or maybe he'd get another receiving operator who was accomplished enough to read the old man's fist.

I did score some points, however, at another relay office when I was able to copy an operator that even the most experienced operators had trouble with. I cleared his file one day and the chief operator happened to notice it - 'Did you clear him OK?' - and when I said

'Yes' he was impressed that I able to do so, inexperienced as I was, etc.

End of an Era

Around 1933, the Teletypes started taking over, and many fine operators became redundant and were 'let go'. On one day in Texas thirty were let out. Myself and one other man were kept on, mainly because we had become interested in Teletype maintenance and knew one end of a screwdriver from the other.

In 1934, I entered a class the AP was conducting on Wirephoto (facsimile) prior to the 1935 start of that service to 26 newspapers coast to coast. During WWII I volunteered to serve in the Army Air Corps and spent a little time in the Public Relations photo section before being discharged because I was over-age.

I went back to AP as a Wirephoto technician. In 1945 I was promoted to Chief of Communications in Des Moines, Iowa; then as Chief at Los Angeles, and then Chief at Milwaukee. I retired in 1966 and we went back to Des Moines. My wife who worked thirty-three years as a Teletype and Wirephoto operator then bid in for a job in Kansas City, and that's where we are now. After I retired I became a real estate agent and worked



Aubrey Keel with his wife Alcía

continued on page 15

IT WAS A LOVELY SPRING MORNING with a clear sky, a light northerly breeze and a moderate sea. Moderate, that is, for the North Atlantic in the month of May. The sun had been up for well over an hour, but there was still a cold nip in the air, and the mate, who had been pacing the open bridge since coming on watch at four o'clock, felt in need of a little respite.

After sweeping the forward 180 degrees of horizon through his powerful binoculars, and finding it reassuringly blank, he stepped into the chartroom. Coffee would be coming up quite soon now, and while waiting for it he would have his first cigarette of the morning and plan his 'chip and paint' programme.

Seated at the chart table he faced aft, and on looking through the window his eye was caught by something vaguely unusual. It was several seconds before he recognised it as the ship's wake, something that ought to have been obscured by the funnel.

His exasperated shout to the helmsman could have been predicted by any seaman and was far from original. 'What

the hell is happening? I don't mind you writing your name on the water, if you must, but I won't have you going back to dot the i's or cross the t's. Get her back on course and this time try to keep awake.'

Rudder-Joke



by John Lingards Sykes G3SRK

Tirade

At that moment the whistle in the captain's speaking tube sounded an angry blast and the mate was soon listening to a tirade as ironic as the one he had just handed out.

'What is the course Mr Phillips?'

'Two-five-two magnetic, Sir.'

'Then how the hell do you account for the sun shining through my star-board porthole? I've had my share of Jonahs in my

time, but never before a Joshua. I must see this for myself. I'm coming up.'

By this time the mate's sarcasm had hardened to anger. After taking a look at the compass, he let out a bellow: 'I said "keep her on course" not "spin her through three hundred and sixty degrees!" Can't you understand plain English?'

The helmsman was young and this was his first trip. He had not been asleep

and the mate's harsh words were unjust. 'I'm trying, Sir, but there's something wrong with the steering and she'll only turn one way.'

'What do you mean, "something wrong with the steering"? I can hear the steering engine turning from here. Give me the wheel.'

Speculation

Seizing the spokes with both hands, the mate gave the wheel a vicious swing to starboard, at least that was his intention, but it was already hard over and still the ship's head swung to port! There WAS something wrong with the steering, but what the hell could it be? Speculation was momentarily interrupted when the captain burst into the wheelhouse.

'What the devil's going on, Mister? I know it's May and I concede that it's a cold and frosty morning, but where the hell is the mulberry bush and why do we have to go round it?'

The helmsman perked up. His tormentor was being paid back in his own coin, by an expert! He very gently resumed the wheel and awaited orders. The captain would know what was wrong. But in fact the captain didn't; although he meant to find out.

No Joke

'Keep the wheel turning, sailor. You come with me, Mr Mate; we'll take a look aft. There must be something wrong with the steering engine.' But there was nothing wrong with the steering engine; the heavy quadrant kept perfect synchronism with the steering wheel on the bridge.

Furthermore, the head of the rudder post was turning. Two blank faces stared at one another for fully half a minute, before the mate opened a porthole in the stern plate and stuck his head through. He withdrew it after less than a second, during which time his complexion had turned from a healthy tan to a dirty grey.

'The rudder, Sir; it's GONE!'

'If that's a joke, I would remind you, not for the first time, that I have no sense of humour; absolutely none! It can't have gone!'

But it had, and we never did discover how or why.

No SOS

For me, the next twenty-four hours were the most active of my entire sea-going career, my *raison d'être*, perhaps. Disappointingly, or so I thought at the time, I was neither required nor permitted to send out the magic signal SOS. But there were lots and lots of exciting messages to be sent and received, particularly with the United States Shipping Board head office at New York and our shipping company office at Houston. We were at least a hundred miles from the nearest American port. It would have taken at least five or six days for a tug, or tugs, to have reached us, and the cost would have been enormous.

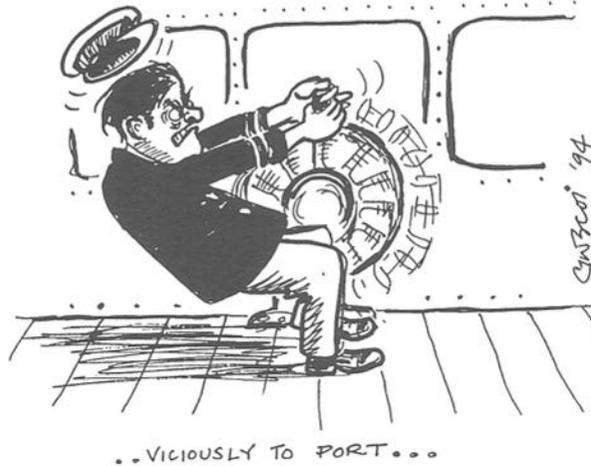
It was customary in those days for American merchant ships to broadcast their mid-day positions by radio, not for any particular purpose, but just to relieve the tedium of a routine sea trip – and to give the captains and crews of ships known to one another something to gossip about over dinner. Captain

Williams was aware, therefore, that the American freighter S/S *Cripple Creek*, also westward bound, was only twelve hours steaming time behind us.

Both ships were managed by the same company and if she gave us a tow rope, charges would go from one pocket to the other in the same pair of trousers. Details between the two captains were

goodbye, and thank you, to *Cripple Creek* and surrendered ourselves to a pair of tugs who soon had us in dry dock at Charleston.

The S/S *West Kamak* was a war-time product of a Californian shipyard. Drawings of the rudder were still available and it was soon arranged for them to be forwarded to a New York builder,



quickly agreed and soon approved by our masters in New York and Houston.

Charleston Bound

By the forenoon of the next day a two hundred fathom cable joined our stern to the bow of our consort and we were on our way to what had been decided was the most convenient port, Charleston S.C., one thousand eight hundred miles to the south-west. We supplied most of the tractive effort, *Cripple Creek's* task being to keep us headed in the right direction.

It was a long, slow and tedious journey, but quite uneventful. On the morning of the tenth day we said

who undertook to build a replacement and ship it to Charleston for fitting.

Lost Elan

It was clear that we were in for a long wait, and I was the only crew member who didn't mind. My home was in England, not Texas, and it was of no consequence if we took three months to reach Houston. I knew that I had no abiding place on any American vessel and that sooner or later my contract would be terminated, and I would be given a passage home.

In the meantime I was earning my highest ever salary, one hundred and twenty-five dollars a month, and sharing

a happy ship with friendly shipmates. But my friendly colleagues were rapidly losing their elan. The captain was not dishing out much pay, the ship was a long way from town, and there was nothing much a strange sailor man could do when he got there.

Lost in Transit

The weeks went by and still there was no sign of our replacement rudder. Letters to the shipyard at New York brought replies, first that construction was nearly complete, then that dispatch was imminent and finally that it was on its way by rail.

We calculated that the journey could take up to five days or even a week. But when, after two weeks, there was still no sign of it, near panic set in among the numerous crew members with girlfriends waiting or, worse still, not waiting. It was noticeable that the married men showed much more equanimity. I was content to go on earning easy dollars, calculating just how long it would take me to save enough to enable me to emigrate to this amazing country.

Angry telegrams were being exchanged with the New York shipyard at

the rate of two a day now, and even the railroad officials were showing some concern. It would seem difficult to lose a forty-ton rudder, even if attempted deliberately; but it happened!

Vital Clue

In the end it was the bosun who came up with the vital clue, when the Second Mate heard him wondering aloud whether there might be more than one Charleston in the United States. A hurried reference to a gazetteer revealed that there were SEVEN others, one each in the states of Arkansas, Illinois, Mississippi, Missouri, Oregon, Tennessee and West Virginia.

Yes, you have guessed right, a ship's rudder had been lying in the freight yard at West Virginia, three hundred miles from the sea, for the past four weeks waiting for someone to collect it and piling up demurrage charges at the rate of ten dollars per day!

I never discovered whether they were ever paid, but somehow I doubt it. Our sojourn in Charleston lasted a total of seventy-five days and I had enjoyed seventy-four of them.

MM

MORSE IN THE AP

continued from page 11

at that for twelve years before really, really retiring.

I'm now 91 years old and trying for 100. We live on five acres and I take care of the grounds and house, etc. I'm

active as an amateur radio operator, having got my first licence in 1948. I prefer CW of course, but I do a little 'phone work as well.

(With Aubrey Keel's approval, this article is based on correspondence between him and fellow MM reader Tom St John-Coleman of Braintree, Essex).

AT THE PRESENT DAY all parts of the British Empire are linked together more or less closely by means of a network of submarine cables. The rates charged for messages sent over this network are, however, extremely high, and owing to these high rates, although they are less than those formerly in force, the general public in every country has become accustomed to look upon the use of the cable as a costly luxury beyond the reach of ordinary men.

This is proved by the fact that the percentage of messages sent by cable, other than business and Press messages, is extremely small. If the cable companies halved their rates, charging 6d. instead of 1s. a word (the present charge between England and Canada), the result would be an increase in the number and length of business and Press messages, but the prices would still be too high to render the cable of much service to the less wealthy, and the cable companies would have more than to double the amount of traffic they handle in order to earn the same dividends as at present.

Cable companies have to earn enormous sums of money in order to meet the great annual expenses due to the repairs and maintenance of their cables before they can begin to make a

profit, and their initial capitalization has to be very large, owing to the great first cost of the cable, averaging, as it does, from £200 to £400 per mile.

The Progress of 'Wireless'

Mr Marconi has, however, provided a system of telegraphy which renders the attainment of cheap telegraph facilities no longer a pious hope practically impossible of realization, but one that can be realized immediately. A beginning has already been

Progress by Mr Marconi – 1909

*From a Correspondent
The Times,
Friday 25 June 1909*

made. The Transatlantic wireless service was inaugurated in October 1907, between Ireland and Canada, the charges being reduced from 1s. per word for business and private messages and 5d. per word for Press messages to 5d. and 2d. respectively, these charges not including the land line charges on both sides of the Atlantic.

The land line companies in Canada and America, owing to their intimate connexion with the cable companies, do not allow the Marconi Company the same benefits and rebates as are allowed to the cable companies, otherwise the rates would be still further reduced. The Marconi Company has as yet opened the wireless service only between Montreal and London, on the principle that it is wise, at the start, not 'to bite off more than you can chew'; but great strides

are being made, and it is expected that the service will soon be extended to other cities, and eventually to the whole country.

The first wireless messages across the Atlantic were sent from the Canadian station at Table Head, in Cape Breton, in 1902. This station was afterwards removed to its present site, five miles inland, and there greatly enlarged. Ever since 1902 Mr Marconi has been conducting experiments and making new discoveries and improvements until, at the present day, wireless telegraphy across the Atlantic, over a distance of 2000 miles, is an assured success.

Owing largely to ignorant misrepresentations, the general public has the impression that wireless telegraphy has many faults and defects that the cables do not possess. When wireless telegraphy was first invented it certainly had some limitations, first as to the distance over which it was possible to communicate; secondly, as to secrecy; thirdly, as to trustworthiness; but these difficulties, real or imaginary, have been done away with as the system has been developed and extended.

In the early days of the invention it was considered a great feat when wireless telegrams were transmitted across the English Channel. Mr Marconi made such rapid improvements in his system, however, that in 1900 he thought he had sufficient data to enable him to design a new station of sufficient power to bridge the distance separating the Old and New Worlds. The Poldhu Station was completed in 1901, and Mr Marconi received the first signals across the Atlantic from

this station in Newfoundland towards the end of that year.

A station was therefore constructed in Canada, on the invitation of the Canadian Government, and by the end of 1902 it was found possible to transmit from this station and receive the messages so transmitted at Poldhu, in Cornwall. The station at Poldhu, not being so large as the Canadian station, was unable to send signals of sufficient strength to be read in Canada, and it was therefore enlarged.

Early Difficulties

Many curious phenomena previously unknown were discovered during the early experiments in transmission of signals across the Atlantic. It was found that messages could be read by night, while no signals could be read at the receiving station by day. It was found also that the strength of signals varied greatly from minute to minute, and until these difficulties had been overcome it was useless to attempt to open the service for the transmission of paid messages, although early in 1903 a short Press message was sent daily to *The Times* until a breakdown in the plant occurred, which perforce put a stop to this also.

From 1903 to 1907 Mr Marconi devoted practically his entire attention to investigating the causes of the variation in the strength of signals and devising means for overcoming the trouble. His investigations led him to the conclusion that the existing stations were not suitable for the work required of them, and therefore the Canadian station was removed and greatly enlarged and a new station built in Ireland.

Experiments were then continued and many subsidiary improvements made in the plant whereby safety and trustworthiness were assured until, after exhaustive tests extending over a long period, it was found that the system was thoroughly trustworthy and it was decided to open the stations for Press traffic, which was started on 17 October 1907. On 3 February 1908, the service was extended to private and business telegrams between Montreal and London. The number of words transmitted during the past year is in the neighbourhood of 300 000. The majority of this very respectable figure consisted of code words, a fact which refutes those who say that wireless can handle only plain English.

Wireless telegraphy, although still a child, has a remarkably healthy digestion, and can digest everything that the cables can digest; although at present the number of words handled per day is small, it would not be rash to prophesy that during the next twelve months the number of words transmitted will be at least five millions.

Trustworthiness and Speed

It is a remarkable fact that, although 300 000 words have been transmitted by wireless, only two mistakes have been reported which can be attributed to the wireless system; other mistakes have occurred, but these, in every case, except on these two occasions, have been traced either to the British Post Office land lines or to the land lines in Canada or America. This fact should be an effective reply to the statements that the system is not to be trusted.

People say that wireless telegraphy can be tapped. This certainly could be done, but only at considerable expense, and, as it is easy to send messages in code – in fact, by far the larger part of telegraph business is in code – it remains to be seen what benefit it would be to any one to tap the messages. People do not realise that it is extremely easy for any one familiar with the Morse Code to read the messages inside and often outside any ordinary telegraph office in the country, and, this being so, no-one would go to the expense of erecting receiving stations for the purpose of reading the messages sent by wireless when they could read the same messages at any office on the land line connecting the wireless stations with London or Montreal.

Since the opening of the wireless service across the Atlantic, Mr Marconi and those associated with him have been conducting experiments with a view to increasing the speed of transmission.

At the present time the average speed of sending is 24 words per minute. Theoretically there is no limit, as there is in the case of cables, to the speed at which messages can be sent, and it is expected that the speed will shortly be increased to 60 words per minute.

Moreover, Mr Marconi has lately devised a method of duplex wireless telegraphy which, when installed on this service, will again nearly double the speed of working, and which will eventually mean a further reduction in the rates charged. The Marconi Company has to compete against 16 cables across the Atlantic whose service is, without a doubt, the best cable service in the world,

and whose cable rates are the lowest for the length of cable laid.

If, therefore, wireless telegraphy can effect a reduction in rates between Canada and England in the face of such efficient cable competition, where the cable service is not so efficient the value of wireless telegraphy will obviously be infinitely greater...

MM footnote: The above report, so partisan that it reads like a press release from the Marconi Company, goes on to describe a proposed 'Imperial System of Wireless Telegraphy'. This was to be 'a network of world-wide wireless connecting all British possessions by means of power stations, none of which will be required to transmit or receive over as great a distance as separates the existing successful Transatlantic wireless stations.'

It was suggested that all parts of the British Empire would be able to communicate with each other at a cost of between 1d. and 8d. a word, with a further eventual reduction to a uniform 1d. a word throughout the Empire.

Twenty-four high-power stations were proposed, together with a number of 'moderate' power stations 'at places such as the Gold Coast, weaving the smaller portions of the Empire into the network.'

Less than a year later, in March 1910, the Marconi organisation submitted proposals for an 'Imperial Wireless Scheme' based on eighteen stations. While these were to be paid for by the British Government, they were to be built and operated by the Company. A contract was negotiated for the first six stations in 1912 but, while this awaited ratification by the House of Commons, accusations were made in the Press that the contract had been corruptly negotiated.

A Select Committee concluded that this specific accusation was completely unfounded but 'The Marconi Scandal' as it became known, delayed the contract until July 1913. No stations had been completed by the time war broke out in August 1914, and the entire project was abandoned.

MM

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IN 1925, PLANS WERE LAID by Amundsen, Ellsworth, and others, for a flight from continent to continent via the North Pole. Two Dornier Wal seaplanes undertook a reconnaissance flight in 1925, and contact was then made with Colonel Umberto Nobile, constructor of the Italian airship N1, with a view to using this for the main expedition.

The airship belonged to the Italian State, but due to Mussolini's interest in the proposed flight a sale was arranged, and after various alterations a Norwegian crew went to Rome at the beginning of 1926 to gain experience of the N1 under Nobile's instructions.

Nobile was appointed to be the commander of the airship, which was renamed the *Norge*. A huge airship hangar was built at King's Bay, New Aalesund, in Svalbard, as a base for the expedition, and the airship with its Norwegian-Italian crew arrived there on May 7, via England, Scandinavia, and Leningrad.

There was some hurry to start the polar flight as Byrd's expedition, to fly to the Pole by aeroplane, was due to take off round about the same time, and in fact Byrd flew over the Pole on May 9.

On the 11th, the airship was ready to go, taking sixteen men with her.

At 01.25 GMT on May 12, the *Norge* flew over the North Pole, dropping Norwegian, American and American flags, receiving congratulatory messages by radio immediately afterwards. Continuing over the Polar Sea, the Alaskan coast was sighted on May 13 but the airship

was blown back out to sea by a gale, finally returning to land with fuel left for just seven hours more flight. It finally landed near a small group of buildings on the ice, the inhabitants of which gave the crew a warm welcome, informing them that they had landed at Teller, 90 kilometres from Nome, their original destination.

Airship Over the Pole

A Book Review

by Tony Smith G4FAI

The First Flight over the Polar Sea by *Roald Amundsen and Lincoln Ellsworth, with additional chapters by other members of the expedition, including B.L. Gottwaldt. – Chapter XVI, 'The Norge's Radio Station and the Radio Service on Board from April 10 to May 14 1926'*

Wireless Arrangements

The wireless equipment on the *Norge* was in the charge of Capt Birger Gottwaldt of the Norwegian Navy, who undertook the responsibility of both procuring the equipment and supervising it during the expedition.

A Marconi transmitter was installed, intended to maintain contact with coastal radio stations over a distance of about 1500km in daylight, on wavelengths between 600 and 1500 metres.

The receiver covered 300–25 000m in the expectation of receiving time signals and meteorological reports from stations around the world several times a day.

Also on board was a two-valve Marconi short-wave receiver of the latest type, covering 10–100m. This was intended to receive signals from station KDZ at Point Barrow, installed by the *New York Times* for communication with Commander Byrd's expedition. It was used with good results during Byrd's flight to the Pole on May 9, and his signals were monitored almost continuously during his 15 hour flight. Unfortunately, this receiver was damaged at the beginning of the *Norge*'s polar flight and was unable to be used further during the expedition.

Squeeze In!

The entire station was housed in a 'radio cabinet', 2m long, 1m wide, and 2m high, in the after-part of the pilot gondola, on the starboard side. All the equipment was installed in this small space, plus a chair and an operating table. It was just possible for an operator, in polar dress, to fit himself in, taking care to avoid contact with high tension and high frequency sparking from the various wires and oscillatory circuits.

Electrical power was obtained by means of a small air-propeller mounted on an arm on the starboard side of the gondola, coupled to a generator inside the 'ship'. A handle inside the gondola could turn the propeller in such a way that the wind operated more or less on the blades, enabling the speed of the generator to be varied or stopped as desired.

In the event of a forced landing, there was a two-cylinder air-cooled Douglas petrol engine driving a dynamo, and an emergency aerial comprising 150m of aluminium cable and a specially made box-kite capable of lifting 3–4kg in a 5 metres wind.

The air-propeller driving the generator gave about 3 h.p. at 1800 rpm. The transmitter operated with CW or ICW (tonic train), and for this purpose there was a small motor-driven interrupter in series with the telegraph key.

The aerial tuning inductance was a large cylindrical coil of thick bare copper wire with fixedappings for the anode and the aerial coupling. The aerial was a single wire phosphor-bronze cable 100m long, about 2mm in diameter, with a lead weight on its end. This was wound in by a special high speed winch with a brake arrangement. The power delivered to the aerial was 'a good 200W'. The filaments of the transmitter valves were driven by a 12 volt accumulator kept continuously charged by the generator.

The transmitter was tuned at 600, 900 and 1400m. It was sometimes used at 900m, but mostly at 1400m to avoid interference from ship and aircraft traffic.

Direction Finding

The airship was fitted with Marconi direction-finding equipment, covering 600–18 000 metres, enabling radio bearings to be taken from ship and coastal stations, as well as the large transatlantic stations, if necessary.

Two direction-finding frames were wound round the balloon surface of the

airship, each enclosing an area of about 400 sq metres, providing a very good performance in conjunction with the direction-finding equipment. When the flight to the Pole began on May 11, the course was constantly corrected by radio bearings taken from a number of stations ranging from King's Bay to Stavanger and large stations in the vicinity of New York.

Throughout this time Press traffic was handled, and greetings received from the King and government of Norway, the Italian authorities, and others. The *Norge's* signals were monitored by the naval guardship *Michael*

Sars off the Finmark coast up to a distance of 2500 km, and messages from the airship were relayed by Rost and Vardoy stations until the 'ship was well past the Pole, again at a distance of about 2500km.

From departure at King's Bay until the time wireless contact was lost, 55 radio telegrams were exchanged between the *Norge* and Svalbard, aggregating 1583 words, plus 'service' traffic.

Traffic was particularly brisk when the Pole was passed, and everything that could be thought of, e.g. flags and souvenirs, were thrown overboard to land on 'the top of the world', all of these matters being solemnly reported by radio to the waiting Press of the world.

Vibrations

When the *Norge* was about 500km the other side of the Pole, its signals

were still R7-8 in Svalbard, but little could be received on board the airship due to noise in the receiver caused by uneven motions of the airscrew. This caused vibrations in the generator which had to be kept going during reception as the capacity of the batteries had gone down in the low temperature.

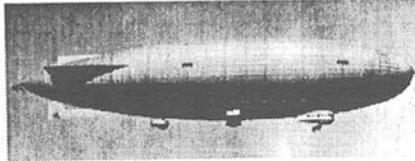
After passing the Pole, the 'ship ran into troublesome ice-fog. The aerial and lead weight were quickly covered with hard milk-white ice an inch thick, making

it impossible to send or receive signals. After a hard struggle the aerial was hauled in and the ice hacked away, only to re-form when the aerial was

again let out. Ice also formed on the airscrew, causing the vibrations and noise previously mentioned. Approaching Alaska, various stations were called without success, although subsequent reports were received that the signals had been heard.

Twice the frozen aerial snapped and was lost due to the additional weight of the ice, and a reserve aerial was brought into use. At this stage, the *Norge* was flying so low that the lead weight on the end of the aerial was bumping and leaping along the frozen ground.

Further attempts were made to contact Alaskan stations or Russian stations on the Siberian coast, again without success, and general messages were then transmitted asking any stations receiving them to notify Nome or Fairbanks that the *Norge* was in flight. Several stations heard these transmis-



The Norge

sions but were unable to contact Nome or Fairbanks to relay the message.

Nome was finally heard on the radio-direction finding apparatus and again a call was put out. This was heard at Tacotna which tried, unsuccessfully, to contact Nome. Subsequently, it was thought the problem was due to the airship flying so close to the earth's surface that much of the radio energy had been absorbed into the ground.

Teller Calling!

When the *Norge* landed at Teller on May 14, it was still necessary to let Nome know what had happened to the expedition. An old 1/2kW ship's wireless set was found at Teller, which had not been used for several years. After much work, this was put into working order. An aerial was suspended between two wooden masts 60 feet high against a very poor earth.

Operators at Nome were greatly

surprised at midday, local time, on May 14, to receive a call from this small station which had not been heard for some years. The station worked hard for a fortnight, far beyond its limits, sending many thousands of words to the outside world telling the story of the *Norge's* difficult and eventful voyage.

When this station closed down, the members of the expedition began a triumphal journey back home – by ship to Seattle, by train across the United States to New York, and then by liner back to Norway – receiving a hero's welcome all along the way.

This is a fascinating book, of particular interest to radio enthusiasts in view of Gottwaldt's detailed description of the wireless arrangements. While it is long out of print, copies can still be found in second-hand bookshops or, as I did, it may be possible to find a copy through the public library service.

MM

— News Extra —

Cal-Av Labs, Inc. has introduced its new 'Contact Cleaner'™, an electronic circuit that, when installed between the key and the transmitter, virtually eliminates the noise from dirty and/or bouncing contacts in straight keys and bugs. The loaded and tested printed wiring board is available either alone (price US\$39.00), for building into other equipment, or installed in an enclosure, with connectors and an internal battery holder (price US\$55.00).

The 'Contact Cleaner'™ operates either on an internal or (optional) re-

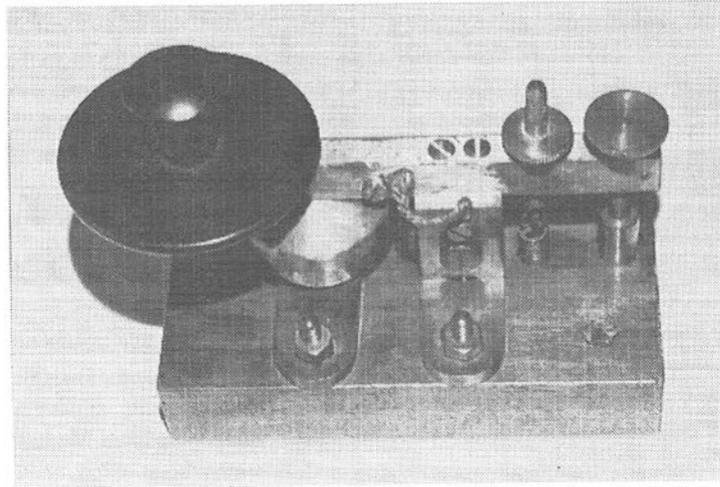
chargeable battery (add US\$20.00), or from an external source of from 6 to 15 volts, making it suitable for mobile or portable, as well as fixed operation. The 'Contact Cleaner'™ is designed for continuous commercial service and is built to commercial equipment standards.

Delivery is quoted as stock to 30 days. Payment in US\$ certified funds, Master or Visa Card. Phone or FAX orders accepted.

Cal-Av Labs, Inc. are located at 515-B Westchester Drive, Campbell, California 95008, USA. Phone (408) 369-1000 or FAX (408) 371-0672.

Showcase

*Featuring keys and other collectors' items of telegraphic interest.
If anyone can add to the information given please write to Tony Smith*



Photo/collection: Jean le Galudec

V.L. oil key, France (1920?). Polished brass on varnished walnut base

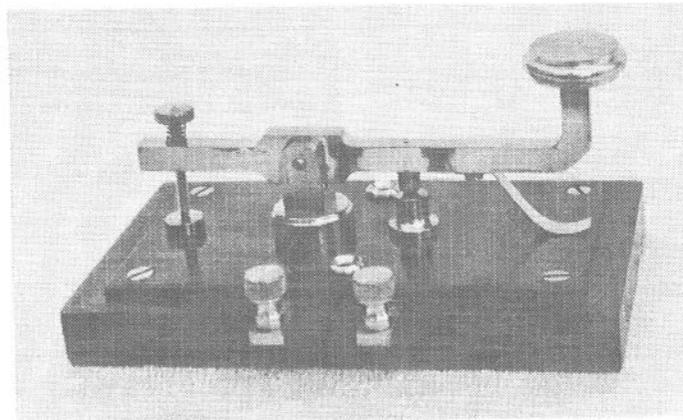
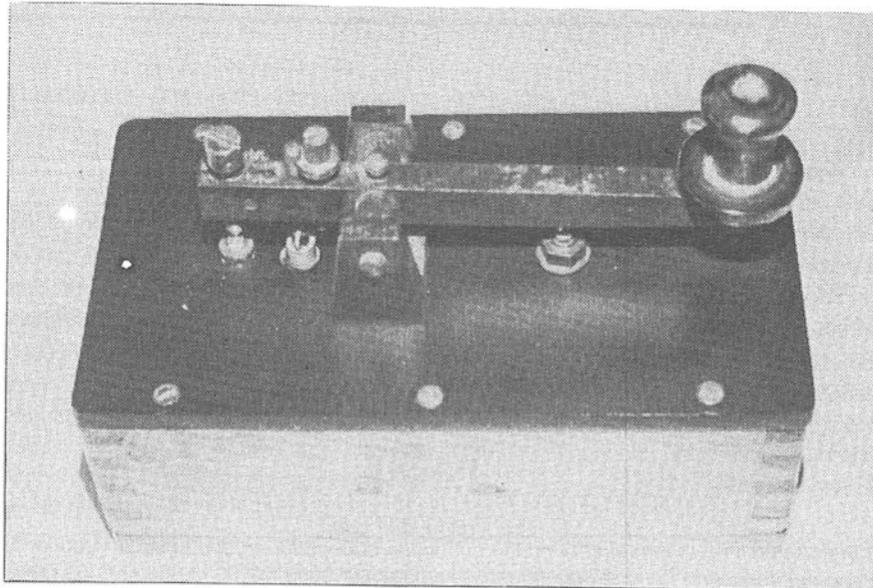


Photo: Dennis Goacher G3LLZ

Reproduction key by Dennis Goacher, G3LLZ, from an illustration in Lardner's 'The Electric Telegraph' 1854. Note leaf spring well to the front of arm, with no adjustment. Dennis writes, 'The key is rather heavy in operation, and the arm shape is the only one I have come across like this'



Photo/collection: Jean le Galudec

*German key, c.1915. Maker C. Lorenz A.G. (Berlin?), serial Nr 1227.
Burnished brass on varnished oak base*

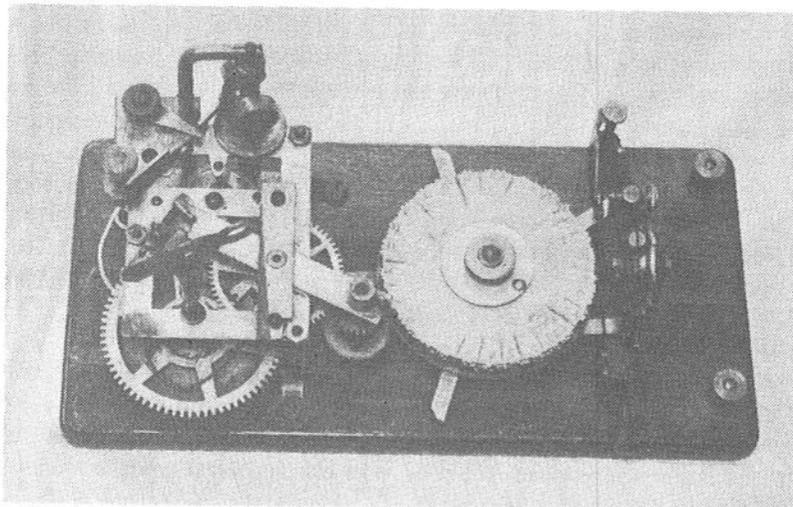


Photo: Dennis Goacher G3LLZ

Omnigraph. Invented by Charles E. Chinnock of Brooklyn, NY, and originally patented by him 25 October 1904. See MM22, p.28, for further particulars

COMMUNICATIONS VIA INMARSAT, the International Maritime Service Satellite, have had quite a drastic effect on terrestrial radio communications, especially on W/T (CW). This switch to INMARSAT has not only had an effect on levels of HF traffic but is bringing the role of a traditional ship's Radio Officer to a premature end.

Portishead General Layout

The communications centre is operated by British Telecom's Worldwide Networks Division, located at Burnham-on-Sea/Highbridge in Somerset, and provides long range radio service for aeronautical and maritime operations. The name Portishead Radio is derived from the location of the original transmitter site at Portishead near Bristol. This site was later supplemented by transmitters at Rugby, Leafield and Ongar. Sadly, the Portishead site was put out of commission some years ago but the famous name of Portishead Radio was retained. The sites at Leafield and Ongar also became redundant to requirements, and only the transmitters at Rugby are now used for

the aeronautical and maritime HF service.

Transmitters

The transmitting site at Rugby is also reducing the area dedicated to this service, and the transmitters are to be housed

in one building as opposed to two at present. The actual transmitters are:

DS13 – made by STC in the 1960s with a 30kW capability. Has a Wheatstone balancing feature to tune up to six preset frequencies.

QT3a1 – also made by STC in the 1960s, capable of tuning to any frequency between 3 and 28MHz with an 8kW capability.

QT3a2 – similar to QT3a1 except for

a different synthesiser frequency arrangement.

QT3a4 – works like a linear amplifier with 9kW pep.

MFT – made by Marconi. Fast tune transmitter similar to QT3a4, only more up-to-date with a 10kW pep capability.

AJAX – made by SPT. Fixed frequency linear amplifier type, manually tuned, and produced in the late 1970s.

QT8 – made by STC. An up-to-date version of the DS13 with the capability

Portishead Radio Today

by Roger Marshall

Roger Marshall has been involved with Morse code since 1962 when he opted to become a Spec. Op. with the Royal Corps of Signals. He later went on to obtain his MPT (ex PMG) ticket and joined the Post Office in 1970 as a Radio Operator. Then, he says, 'Morse really was the main mode of communication'. In this article, he describes CW working at Portishead Radio today and how it is organised.

to change frequency automatically. Has a 30kW pep capability.

The output power of transmitters is reduced to 5kW on frequencies below 8MHz for CW and FSK modes, and restricted to 10kW in SSB mode.

Antennas at Rugby are Rotating Log Periodics, Stacked Quads, Spiracones, Wideband Cones and Rhombics.

Receiving Arrangements

Reception is provided by the receiving site at Somerton, in Somerset, which has a larger aerial farm than that originally in use at Burnham. Signals are transmitted by microwave links between Somerton and Burnham via the Pen Hill mast on the Mendip Hills. The receivers, located at Somerton, are Racal RA.1792 remotely controlled from Burnham by Racal MA.1075 control units.

There is no marked difference between the quality of reception using this method of operation and one that has a conventional local antenna, amplifier and receiver – that's what the engineers tell us, anyway!

Burnham's antennas have now been removed and the only clue to its role as a radio station is the microwave tower and dish, a Cellnet repeater tower, a few whip aerials and a couple of long wires – plus the irregular comings and goings of Morse-riddled operators, twitching after years of H24 shift work.

As It Was

The number of staff employed has been reduced to 73, many taking advantage of BT's release programme of voluntary redundancy – very tempting, but

I'm nowt but a lad yet! Other BT departments now occupy the vacant spaces left by the reduction of the radio services.

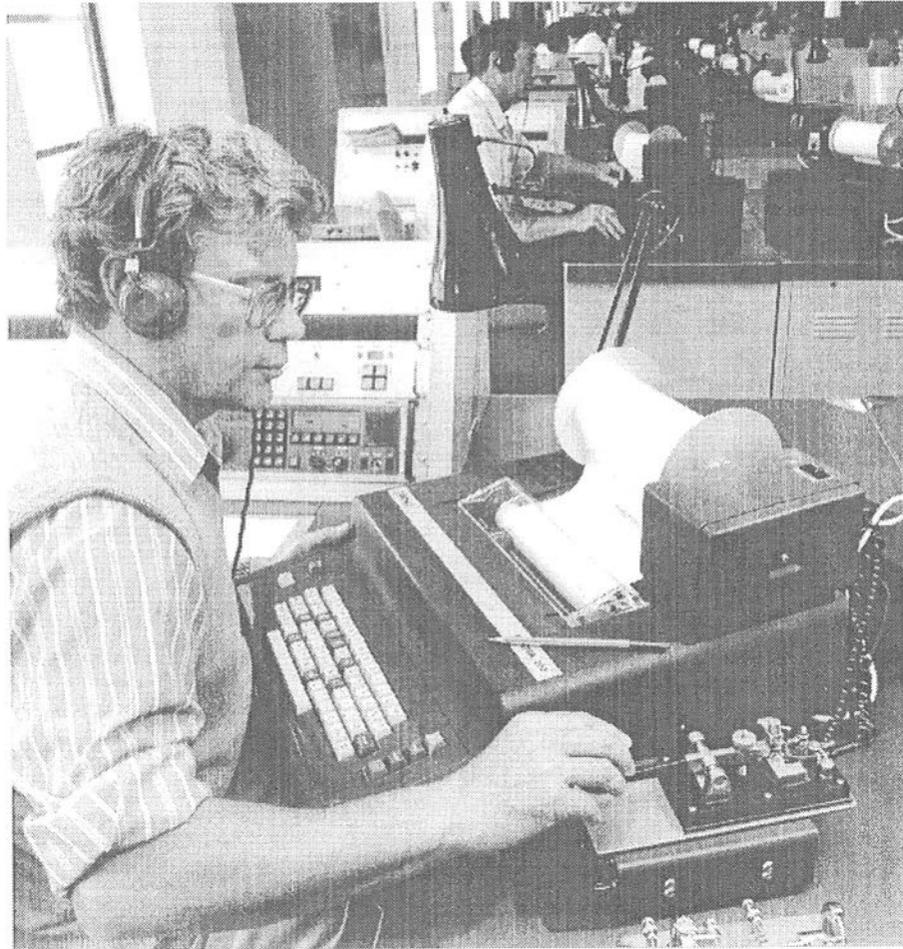
It's a far cry from the 1970s situation when nearly 300 operators were employed, and three wings of the old building were dedicated to CW operations only. Traffic was taken on typewriters, sent by conveyor belt to a control room, transferred by hand to another conveyor belt into a landline room, routed by hand, sent on teleprinter to its destination, collected by an accounting officer, charged and filed away for storage. But that was then. This is what CW at Portishead Radio is like now...

Wireless Telegraphy Today

The Burnham Message Handling System (BMHS) is the computer which handles all the station's operations on CW. The details of ships are held on a database (SNF), and all from-ship and to-ship transactions are checked with the SNF before any further operations can be carried out.

Only 12 consoles are required to handle the CW traffic. The consoles are fitted with a Racal Control Unit which looks exactly like the receiver itself; an antenna selection unit giving 360 degree selection in 15 degree steps, plus an omnidirectional option; two transmitter selection units giving access to all the CW transmitters; a visual display unit (VDU) and keyboard; and two Morse keys.

Ships call Portishead on whatever channel is being emitted by the GKB series transmitter. The searching officer enters the ship's callsign, bearing and QSS (working frequency) into the VDU



British Telecom International photograph

One of the W/T operating positions at Portishead Radio as it was in 1988. At that time, traffic received from ships was transcribed onto a teleprinter; trials of different models of VDU/keyboard set-up were being conducted to select the most suitable. The Racal receiver control unit is visible behind the operator, who has a selection of keys to hand

which is connected with BMHS. The ship's callsign is checked with the SNF and the details are passed to the first vacant working point VDU along with any outstanding traffic. The searching officer monitors channels 2 and 3 stored in the receiver on 4, 8, 12, 16, and

22MHz – there used to be a searching officer on EACH of the bands but it is now handled by one operator.

All from-ship traffic is typed directly into BMHS via the VDU/keyboard, the format and word-count being automatically checked before acceptance. When

accepted, the from-ship traffic is automatically transposed into a format acceptable to EMHS (Enhanced Message Handling System) located at Coventry. EMHS replaces the TRC acceptance centre in London. The EMHS then forwards the message to its destination by whatever pre-selected method is chosen by the addressee. All telegrams to and from the UK are routed through the Coventry EMHS.

Traffic Lists

Acceptance of to-ship radiotelegram traffic submitted by telex is also undertaken by the CW operators. Any necessary editing is carried out and traffic is then tendered to the BMHS store to await collection by the ship. Any traffic not collected within five days is automatically cancelled and the sender advised accordingly. No charges are raised for undelivered items. Traffic still on hand after 24 hours is checked manually to ensure that the particulars are correct and also to see if another means of delivery is possible, i.e., via a short range coast station, an overseas station or via INMARSAT.

The hourly CW traffic list on the GKA series is automatically compiled from the traffic on hand in the BMHS store, and all ships fitted with HF CW are called in this list. Ships fitted primarily with HF radiotelephone are called in the hourly R/T traffic list.

Ships fitted with Radiotelex (SITOR) are also called in the GKE (TOR) traffic list as well as either the R/T or CW traffic list. The ship's radio details held in the SNF database determine in which list(s) the ship should be called.

Morse Keys Used

The two Morse keys supplied on each point are a robust Post Office straight key and a Katsumi electronic squeeze key. Other privately-owned keys include a variety of bugs like the Vibroplex, different Japanese electronic squeeze-keys and even a home-made hacksaw blade side-swiper. Mine is a modified Dentsu-seiki Japanese bug circa 1960, keyed with the right hand but producing dashes with the thumb and dots with the first finger – which always fools the unwary! Working speeds vary from a sedate 15 wpm up to a crisp 25 wpm when a Russian operator is at the other end.

Reception Reports

Short Wave Listeners logging the station will be pleased to know that reception reports on any Portishead service will be acknowledged with a QSL card, but this is now restricted to overseas listeners only. Reports should contain enough information to make verification possible. Reporting the continuous generated callband is not considered sufficient. A problem, especially in the UK of course, is the law prohibiting the copying of radio traffic.

(Extracted and adapted for MM, with permission, from a two-part article 'Portishead Radio – An Update' which appeared recently in Monitor, journal of the International Short Wave League. While this extract refers principally to CW operations, the full article also describes Radio Telephony, Radiotelex (TOR), INMARSAT (briefly), and other services currently provided by Portishead Radio. – Ed.)

YOU'RE PROBABLY AWARE that Ham testing in the USA is very different from what happens in New Zealand. In the States, both written and Morse examinations are administered by groups of accredited volunteers. Frederick Maia W5YI is Co-ordinator of such a group. I wrote to him for an update on the US Morse testing system. He sent me back a mountain of material on all aspects of Licensing. Here are some excerpts from his summary.

'While the written tests are standardised, the telegraphy is not. Only the FCC testing rules apply'. Frederick quoted these in full, but I'll just summarise the major points:

'The exam has to prove that the candidate "has the ability to send correctly by hand, and receive correctly by ear". All letters, numerals, standard punctuation, and prosigns AR, BT and SK must be included at least once. The sent message must last at least 5 minutes. Passing a telegraphy receiving examination is adequate proof of ability to both send and receive, although the administering VEs MAY include a sending test.'

Note that last sentence. If you can receive, it is also assumed that you can send. Frederick comments further:

'How proficiency is demonstrated is up to the Volunteer Examiner team. There are no specific instructions as to what constitutes a "passed" code test.

The answer format may be: One minute's solid copy; Answering 7/10 questions about the transmitted text, which may be 10 multiple choice questions; "Fill in the blank" (the text is provided, with 10 words left blank)*; or 10 "true/false" questions*. All of these are legal.

(*The last two methods of testing are no longer permitted since 1 January 1994. See 'News', MM29, p.5. - Ed.).

The US Morse Tests

by Gary Bold ZL1AN

It is also stated that '...VEs usually allow ample time after the test for you to correct your copy' ... You'll pass if either your 'one minute solid copy' or your '10 question' answers fulfil the requirements.

There are 3 different tests for different grades, at 5, 13 and 20 wpm, usually sent in 'standard QSO' format. The W5YI Group distribute an excellent 'how to do it' kit to their VEs, which includes the interesting statement:

'You are not required to use specific Morse code test tapes. In the interests of maintaining code integrity, it is preferable that you make up your own if you have the means to accurately send code at the required speeds. Personal computers can easily generate suitable tests. We offer IBM compatible software which does this'.

This all adds up to a very relaxed philosophy compared to that associated with the draconian ZL (*New Zealand. - Ed.*) test - which has in the past allowed only 2 errors in both sending and receive-

ing tests, with blemishes included. Also compared to the VK (*Australian. – Ed.*) test, where accredited examiners can give the Morse test, but only from approved tapes supplied by the DOTC – and the candidate's sending test must be taped, mailed back, and judged by higher authority.

In contrast, US VEs are completely trusted to administer and grade tests on the spot, are encouraged to compose their own tests, and computers are totally accepted as testing tools. Also, candidates can take the test whenever they can get a VE team to administer it.

Morse Test Practice Software

As part of the W5YI Instructional kits, (there's one for each license grade) you can get a menu-driven MS-DOS software package called *Morse Academy*. As well as teaching you the code (by more or less traditional methods) and giving different kinds of practice, this package can generate files of, and send, legal code tests.

Here's a sample:

```
VVV VVV KJ5QZ DE N4XVJ/8 =  
SOLID COPY TIM. ANTENNA IS  
TRIBANDER UP 37 FEET. NAME IS  
HARRY. RST IS 569. LOCATION IS  
WHEELING, WEST VIRGINIA. RIG  
IS HEATHKIT HW8 AND RUNS 2  
WATTS. HOW COPY? KJ5QZ DE  
N4XVJ/8 +
```

ASCII files containing a legal question paper based on this text, and answers, are also generated. These, too, can be printed! This is impressive software, and there's an even more impressive package for revising for the theory and regulations test.

Philosophical Summary: The Great Debate

The Morse/anti-Morse debate has never risen in the US to the level of fury and emotionalism it has in ZL. There is simply no major movement calling for its abolition, nor, in my judgement, will there be for some time. Indeed, the contrary often seems to be the case. For example, here's an extract from a resolution adopted by the board of the ARRL, in January 1993.

'WHEREAS: Morse Code is the international language that fosters communications between peoples with different languages, and

'WHEREAS: Knowledge of the Morse code has, for decades, proven to be of positive value to the Amateur Radio Service world-wide; now therefore, the American Radio Relay League strongly 'REAFFIRMS its continued support for a demonstrated proficiency in the international Morse code as part of the license requirements below 30MHz, and 'INSTRUCTS all ARRL representatives to continue to insist before all national and international bodies that there be no modification to the present proficiency requirement.'

The ARRL is felt by many to be a conservative voice in US radio politics. Nevertheless, many support it, and it has considerable influence. I don't think the international Morse requirement will be zapped before the ARRL stance changes.

Ponder, though, what my summary above says about the US view of 'Morse proficiency'. I am convinced that if ZL, years ago, had been able to adopt this more relaxed interpretation, the

ill-natured frenzy of the debate would never have arisen.

Yet, methinks, I hear the clatter of conservative keys 8349 miles away in Godzone (*this article was written in the USA. – Ed*). 'A pox on this Morseman!' they cry, 'He seeks to dilute our Morse test! Surely our standards will go down the gurgler!'

My friends, what a paradox. I wish

you could hear the lyrical, rich Morse chorus that fills the room as I tune, right now, across the US 40 metre band. Having 'easy' tests doesn't seem to have lowered the calibre of CW here in any way. How I wish I could hear the same chorus in ZL!

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

Readers AD's

FOR SALE

The 82-page MM Q&Z Codebook is still available (see MM18, p.3). Contains all international Q and Z-codes plus the original Q-codes of 1912. UK price 5.00, overseas US \$10.00 surface or \$12.00 airmail, payment by banknotes only. Dick Kraayveld PA3ALM, Merellaan 8, 3145 XE Maassluis, Netherlands. Tel: 01899-18766.

WANTED

Does anyone know a source of supply for spare parts for Hi-Mound keys? I have an HK-708 requiring a knob and two bearing caps. Gerry Farrance G3KPT, 51 Amberley Green, Great Barr, Birmingham B43 5TJ.

Aircraft Identification Switchbox, 5C/372, as described in MM30. Ian Mant G4WWX, 28 Welbourne Road, Childwall, Liverpool, L16 6AJ.

American key collector seeks purchase/trade for camelbacks, Chubbock, Melehan, Valiant and other unusual telegraph keys. Send photo, info, etc, to Joel Wisotsky N2LAI, 31 Cow Lane, Great Neck, NY 11024, USA.

Eddystone Bug and/or Vibroplex J-36 for everyday on-air use. Original condition and not too tatty. Phone Phil, G3XVP; (office) 0532 440378, or (home – until 10 pm) 0532 812064 (West Yorks area).

EXCHANGE

Russian standard Navy key, black plastic, nice short key with big knob, with cover, new. Exchange for any other key. Offers to Greg Ulsamer DL1BFE, Logumer Str. 66, D-26723 Emden, Germany. Phone: (DL)4921-61460. Fax: 4921-802387.

Vibroplex chrome left-handed bug key. Very rare, in superb condition in box. Will swap for any unusual bug key. Not for sale – only to swap with other collector. G3VTT QTHR or 'phone Maidstone (0622) 739936 (right-handed operator!).

I have some bugs and paddles to trade for straight keys – Marconi Marine Type 971 and RAF Type B1 especially sought. Wyn Davies, Pen-y-Maes, Halcog, Brymbo, Wrexham, Clwyd LL11 5DR, 'phone 0978 756330.

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.

Bookshelf

A mail order book service for selected telegraphy and radio titles. The letters *MM* or *RB* followed by a number after each description 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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Bunnell's Last Catalog (with commentary) by Tom French (American Morse Series)

The 1965 catalog of J.H. Bunnell & Co, manufacturer of keys, sounders, etc., abridged from the 1918 catalog, plus a commentary and a 1918/1965 price list. (MM23)

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Illustrations of landline telegraph equipment, listings of train order rules, and ads from early telegraphers' magazines. (MM22)

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Keys, Keys, Keys by Dave Ingram K4TWJ

The 'key story' from the 1800s right up to the present day. Hand keys, 'bugs' and automatics, military, home-made, unusual and rare keys, plus restoration. (RB13)

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McELROY, World's Champion Radio

Telegrapher by Tom French

A biography of Ted McElroy, holder of world record for Morse reception since 1939, plus photos and details of all the 'Mac-Keys'.

150 pages, 8½ x 11in, softcover, perfect bound

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A First Class Job!

Joan Long's biography of her father, Frank Murphy, founder of Murphy Radio.

209 pages, 5¼ x 8½in, paperback

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by John W. Stokes

A profusely illustrated book recording the worldwide development of the valve from its origins in the experiments of Thomas Edison in 1880.

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102 pages, 8¼ x 11½in, paperback

£13.00 (UK): £13.75 (Eur/Sur)

PLEASE NOTE

Some prices have had to be increased following rises in postal charges at the end of 1993.

WHILE THE ACTIVITIES of Guglielmo Marconi are well-documented, few know that Marconi's Wireless Telegraph Company visited the island of Borkum at the end of 1899 to install the first official wireless service in Germany in the island's lighthouse, and then on the 'Borkumriff' lightship in early 1900.

At the same time, the first commercial installation on a merchant ship took place, when the German liner *Kaiser Wilhelm der Grosse* was fitted with untuned Marconi equipment. This was the fastest ship of its day and it sent

its first 'Marconigram' to the company at Bremerhaven, via Borkum Island, on 28 February 1900.

The German Imperial PTT managed the service and opened these first coast stations for public correspondence on 15 May 1900, with the stations operated

by the lighthouse keepers and the captain and mate of the lightship.

Between 1900 and 1904, paid telegrams via both stations totalled about 5000. Both stations, lightship and lighthouse, normally made traffic with

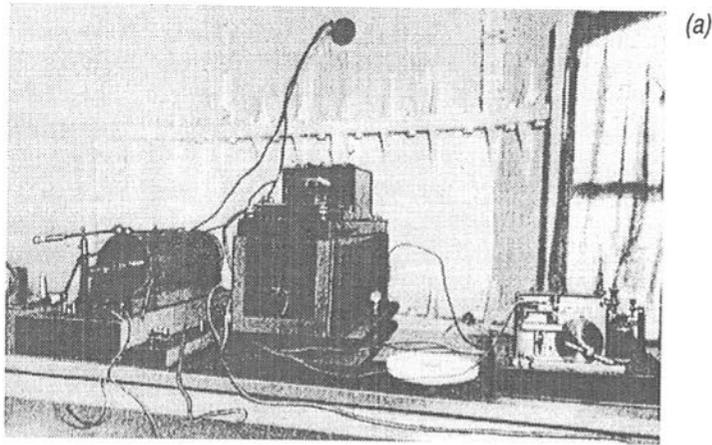
passing ships by flag signals. Ships who wanted their presence advised to shore

Borkum – First Official Coast Station in Germany

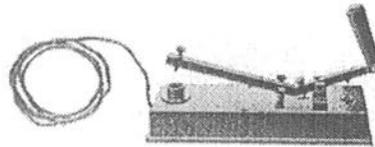
by Gregor Ulsamer DL1BFE



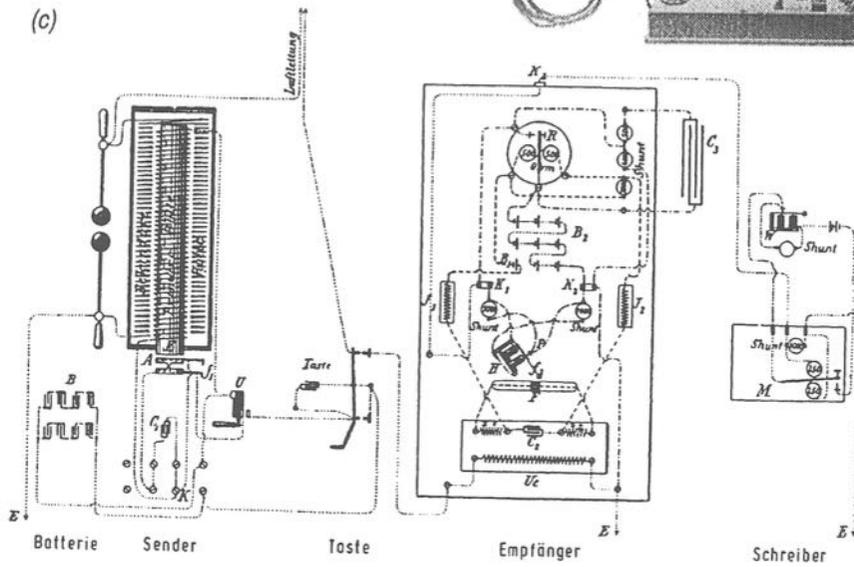
View of the first German coast station at the Little Lighthouse, Borkum Island, installed February 1900. The lighthouse keepers operated the station



(a)



(b)



(a) The Marconi 'transceiver' of Borkum station. On the right is the Morse writer to record the received messages. The receiver is in the centre on its case. The cylinder on the left is the spark transmitter, and beside it is the Morse key (also pictured at (b)) which was a TX/RX changeover switch at the same time – 'Receive' when back contact closed.

(c) Circuit diagram of the 1900 Marconi station at Borkum. The spark gap of the transmitter and the coherer of the receiver (F) were the most significant parts

hoisted the signal QP or QR.

All telegrams went via the Telegraphenamt Emden, which was the terminal for German submarine cables. By 1913, there were 350 officers employed here, handling around 18 000 telegrams a day, totalling over 5.6 million in that year. Successive 'Borkumriff' lightships were official coast stations from 1900 till 28 February 1975, coincidentally exactly 75 years from the date of the first official telegram sent by the Kaiser Wilhelm der Grosse. **MM**

MM FOOTNOTE: MM readers able to read German may be interested in a 236-page book, *Feuerschiff BORKUMRIF* by Gregor Ulsamer (ISBN 3-8007-1750-6), pub. vde-Verlag, Berlin/Offenbach. Sub-titled 'The fascinating

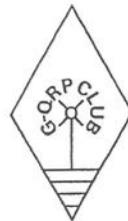
history of communications between ship and shore', it brings together the histories of lighthouses, lightships, signal stations, carrier pigeons, the German lifeboat organisation, weather forecasting, naval and submarine services, submarine telegraphy and the development of wireless communications – all through the story of the wireless stations on Borkum Island lighthouse and the Borkumriff lightship.

The book has 190 illustrations, and a few of these are reproduced here. Copies of the book, complete with an imprint from the original ship's stamp of the last manned 'Borkumriff' lightship, can be obtained direct from the author, MM reader Gregor Ulsamer, Logumer Str. 66, D-26723 Emden, Germany, price DM 42.00.

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



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G4ZPY

PADDLE KEYS INTERNATIONAL

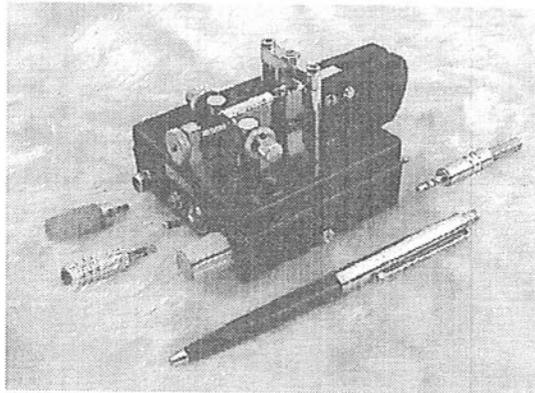
41 MILL DAM LANE, BURSCOUGH,
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TEL. (0704) 894299

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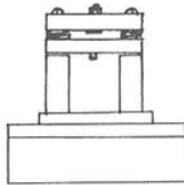
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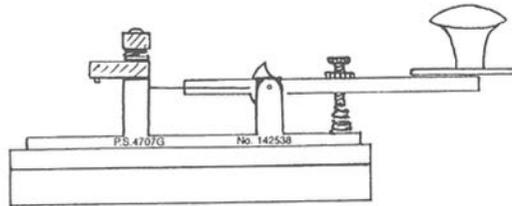
Info Please!

Readers require further information on the following keys, etc.
Please write to Tony Smith, c/o the Editorial Office (see inside front cover),
if you can help.

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



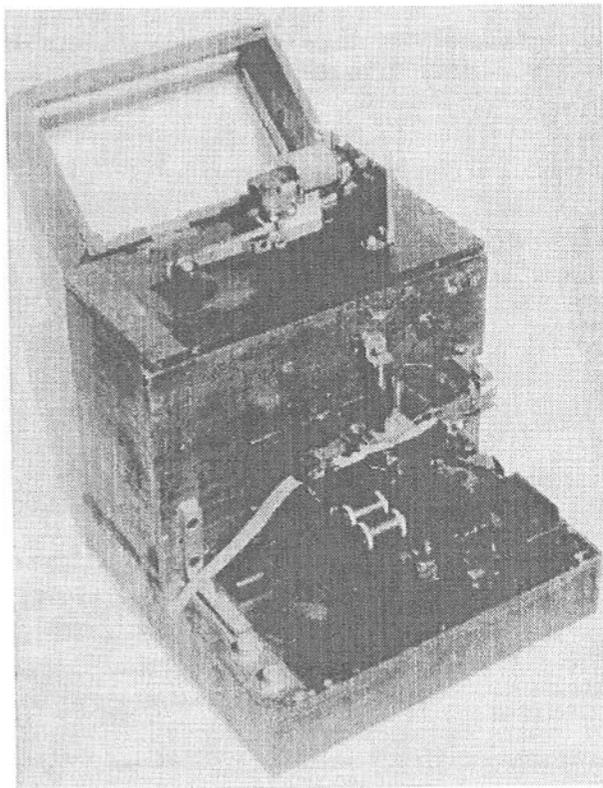
End View, showing
main contact bearers



Side View, half actual size

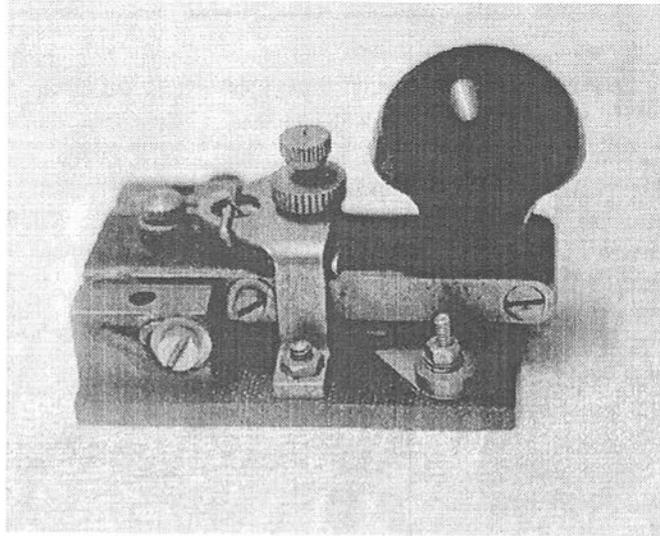
(Above) RAF 10F/8782
key, marked on base
P.S. 4707G No. 142538.
Does anyone recollect or
have any information
about this type of key
please, i.e., maker, use,
etc.?

Query from Wyn Davies,
Brymbo, Wales



(Right) Information
sought on this mystery
paper-tape recorder.
Query from Douglas Byrne
G3KPO, Ryde, Isle of Wight

*British Army Key
YA 1860, as used in
Telephone Sets D
MkV. We would be
interested in hearing
from anyone who used
these sets. Were they
ever actually used for
Morse signalling?*



Collection/Photo: Dennis Goacher G3LLZ



Collection: Lee Grant G3XNG. Photo: Jim Lycett G0MSZ

*Czechoslovakian Army Key? PRIJEM↑ on arm = Receive.
VYSILANI↓ on other side (not shown) = Transmit.
Further information welcomed*

IT HAS BEEN RATHER COMMON PRACTICE to teach the special signals which have no written equivalents, and sometimes the less common punctuation marks, as being composed of two or more letters sent as one whole. For example, OS for colon. This may have merits for lesser used symbols, but it is bad pedagogy to suggest that those having some difficulty with regular letters think of them in this way (e.g. F as IN). Unfortunately many operators send these rarer signals as separated letters (e.g. double dash as B T).

Comparative studies have shown that the person who learns best in the first hour of instruction generally proves to learn quickest and best in the end. Vocalising signs, billboards (advertisements), etc., into code (by *didah's* or whistling) is generally believed to be a good way of getting in some helpful familiarisation between practice sessions in the earlier stages.

Virtually everyone agrees that it is easier to send code than to receive it. The learner's main efforts, then, should be to improve his ability to receive, and to increase his receiving speed. In general the beginner should avoid trying to send at all until his 'timing sense' is good enough to be able to form the characters in proper proportions, including the duration and spacing of parts, between let-

ters and between words. Too short or too long dahs, dits that sound too much like dahs, running two or more letters together without proper spacing between them and running words together make readability very difficult. An expert may be able to decipher it, but the beginner is only confused.

The following advice is wisely based on years of experience: First, concentrate on raising your receiving speed, and second, aim for evenness and regularity of timing when you send – not

on speed of sending.

Acquiring the Radiotelegraph Code

Part 2

by *Wm. G Pierpont NOHFF*

Typical Beginners' Errors

Before discussing the second stage of learning, let's look at the beginner's typical problems and errors. Conventionally the following letters have been rated as the 'most difficult': P W J F Y G Q L Z X. These are in general the least common letters. But if a student does have 'difficult' letters, it seems to be mostly dependent on how he has been taught as to what they may be. No letters are inherently 'difficult'.

Beginner's errors tend to fall into certain categories:

1. Hearing a character as being shorter than it is – about 44 per cent of all errors.

(a) 'Dotting' errors, hearing too few dits: e.g., 5 heard as H, H heard as S, 6 as B, 4 as V. These account for about

36 per cent of all errors, and listening in the ham bands suggests the sender may often be at fault! It is usually three or more dits that get confused.

(b) Hearing too few dahs in a series: e.g., hearing M for O, J for I, Z for 8, etc. This is not a high-frequency error type – about 8 per cent

2. Substitution of elements – accounting for about 30 per cent of the total.

(a) Confusing the last element of a character: hearing R for W or vice-versa, P for J, Y for C, X for B, V for H, and vice-versa.

(b) Internal confusions: e.g. hear 2 for 3 or vice-versa, etc.

Other error types are less common, such as inversion (K versus R, for example), and reversal (F versus L, etc.). Some of these are more common when similarities and contrasts are dominant in teaching. As can be seen, all these error types are due to confusing pairs of 'similar' letters. This is why it appears that the wisest teaching-learning policy is to treat each code character as independent of the others.

It has generally been found that special drills on such confused pairs do not appear to help much. Some have suggested that where students do experience such trouble, they direct their attention preferably to only one of the pair, the longer one. All this seems avoidable if each character is learned as an individual pattern.

Reading and Copying

So the first two steps in stage one of learning code may be spelled out as:

1. The somewhat hesitant, but clear identification of individual letters,

2. A reducing of the hesitation period successively until there is virtually zero time between hearing the character and its recognition.

To achieve this involves both listening and writing down what is heard. Listening and understanding without writing anything done is called 'reading' (sometimes erroneously 'copying in the head'). 'Copying' is properly the act of writing down what is heard or read. In the early stages much of the learning-practice material will be scrambled letters (in the widest sense – including numbers, etc.), and since this cannot be remembered long, it must be written down in order to check progress. At first this copying will be letter by letter as each is heard and recognised.

Most beginners, as soon as they are gaining some speed in recognition of characters also begin to recognise little common words, such as 'the, of, and', etc., provided their practice material is based to a fair degree upon ordinary language. For them it is a pleasant surprise and pleasure to realise they have already begun stage two: word recognition.

Not only for personal enjoyment in communication, but also for comfortable and easy copying, stage two is necessary. Except for difficult conditions of reception, it is awkward to have to depend on writing down letter by letter what is being received, in order to know what is being sent.

Trust Your Subconscious

This letter by letter copying is mainly motivated by a fear of losing out. It will defeat achieving stage two. 'Throw Away Your Pencil' was the good advice of a recent article in *QST*, and is in agree-

ment with the best of advanced code instructors' advice. This means practice in just listening, reading code.

The two ingredients in achieving this goal are actually no different than in initially reaching the end of stage one: (a) listening, and (b) training and learning to trust the sub-mind for recognition. As long as the mind is consciously involved in a skill process it will be slow and taxing. Stage two is the gradual transfer of a conscious process to the subconscious mind. And this involves listening and trusting the mind to learn to do it.

Several useful methods have been used, and all are good. These may be outlined as:

- (a) learning to hear syllables and words as syllables and words,
- (b) practising seeing, as it were, the letters projected on a mental screen, following one another to build up words, as on an electric sign,
- (c) 'sounding out' words as the letters come in, like 'wuh...wa...was" (a practice of many old timers, it appears)
- (d) word games, where one person sends a word while the other listens without writing, and immediately afterwards sends it back.

And there are doubtless other ways which accomplish the same goal.

Hundred Commonest Words

Walter Candler, among others, recommended the two-fold practice of (a) much listening to well-sent code (preferably on-the-air for realism – this was before the days of easy recording), as described below, and (b) practising sending and listening for the 100 commonest words first (*see MM12, p.18 – Ed.*) and

then extending this to larger and other words and syllables.

How is this listening to be done best? Just listen! At first you may be able to make out only a character now and then (depending on your present ability and the speed of a transmission). As you continue listening you will get more and more. Small words will begin to jump out: as soon as they have been sent you will know what the word is, although you did not consciously spell them out.

Continue this practice until soon you will get enough of each sentence to make sense of it. Some days you will get more than others – don't let this trouble you – all of us are like this at first. You will discover that you can read several words solid, and then not be able to read anything more than a letter here and there for some space. Keep on listening. All this is normal. Keep on listening: give the incoming signals your undivided attention, relaxed, as though listening to a friend talk.

Soon you will be catching not only small words, but longer ones, until you get them all. (But usually not over 30 minutes at a time for practice!) As you listen, hang onto every letter, word, phrase like a leech. The best practice is to listen close to your limit in speed. Straight reading matter is the very best for gaining speed. Replaying taped material at the highest speed you can hear and follow is beneficial.

For sending, send first the 100 most common words, and then longer ones, to yourself THINKING OF THEM AS WORDS, not spelling them out. This should be done over and over again to help you think in code of words as words.

We must learn to think code. It is beneficial also to make up short sentences composed entirely or mostly of these commonest words.

Copy Behind

Copying behind the sender by several words helps relieve pressure. It is possible to copy letter-by-letter up to about 25 wpm – and this kind of copying is almost necessary with scrambled ‘text’, since no one can carry a string of unrelated letters in mind very long (any more than he can a string of numbers).

But when these letters are seen to form words, it becomes easy to let the mind retain them during the interval between when they are recognised and then written down. This is where learning to hear words as words also pays off. For most of us it is probably not wise to try to copy more than two or three or four words behind, lest an unusual word crop up, or a severe burst of static or interference disturb our input and throw us for a loop and derail our copy. (Experts learn to copy much farther behind as a matter of routine.)

Fear of losing out tends to drive one to sticking close to the sender in copying. We must learn to trust our ability here, letting the subconscious mind do its job to retain the image impressed from the ears. It can only do that if we stop worrying that we may not be able to do it. We need training to let the subconscious accustom itself to digging up the images of the words after the operator has sent them – becoming a sort of automatic response. We must relax for this ability to surface.

We need to learn to wait at first until the first few words have been received

before starting to write, and then calmly keep about the same distance behind the incoming signals. The job is tremendously aided when we hear words and not just letters.

Some conscious effort is needed to get started this way. But as already noted, conscious attention or effort is fatal to higher speeds: the conscious mind simply cannot react quickly enough to follow. The more conscious thought is given to the incoming signals the slower and more effortful reception becomes. Habit formation begins with conscious effort until the subconscious mind can take over the job – and do it better and faster.

This is why listening to poorly sent code, or through strong static or interference is more difficult – the conscious mind is drawn more or less to sort out the desired signals from the confusion present. But that too, with practice can become automatic – as experts’ copying shows. (Some consider this to be a task as great or more so than learning the code in the first place.) For example, a trainee able to copy at 25 wpm will usually drop back to about 15 wpm in strong interference.

Unless one is used to hand printing, it is probably best (except for scrambled type text) to use one’s normal writing style. Letters in script should be joined as words. But above about 25–30 wpm one will have to resort to a typewriter, a ‘mill’. In using a typewriter, write smoothly – don’t listen and then type frantically.

Don’t Anticipate

One key point in all reading and copying of code is this: follow what is being sent, but never try to guess ahead. Anticipation momentarily blocks out

reception, and blanks out the next few letters at least. Not only so, but the guesses are often wrong, and bring on a degree of consternation. Anticipation is conscious mental activity, and it interferes with the subconscious activity.

Material Type

It has been found that the type of material one practises with most is the kind which will be best done in a test. Those who mostly practice with random letters will do best with that. It seems that when they have straight language to copy they tend to become confused or possibly mentally excited when they discover the letters they copy actually form words which can be recognised, thus interfering with their copying. Since most telegraphic communication is to send and receive ordinary language, it would seem best to major in that kind of practice. These comments apply mainly to the stage one area.

Similarly, extensive practice with five-letter groups (or any fixed size) leads the mind to expect breaks at these uniform intervals – which is unrealistic in natural language. It does not train the mind to watch for clues to the beginning of a new word. With inadequate copying practice most people find it easier to copy at a higher rate for a two-minute run than for a 15 minute one.

The ability to copy code is always measured in terms of what is written down. Just direct your efforts at copying what is being sent. If you miss a letter or two, leave a space and keep going! Don't get excited. If you stop and try to figure out what was missed you will miss more. Very often the missing parts can be supplied by the context.

Self Testing

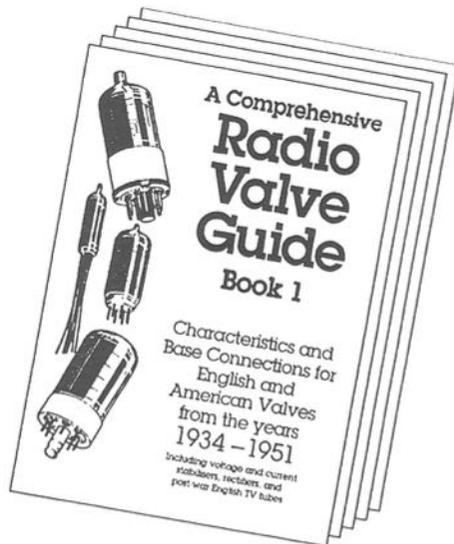
Periodic testing during the learning process usually provides a stimulus to further improvement by showing evidence of progress already made, as well as showing areas needing improvement. Since people are different, such testing will fit the individual's needs best. One valuable practice (after one has a good feel for timing of characters) is to record a short article or news item after reading it through and deleting any punctuation marks beyond those needed to know. Record it on tape, and set it aside for a number of days. Then listen to it critically for accuracy of sending and finally against the printed article. No outside help is needed to do this. If done several times a week, noticeable improvement should be found in a few weeks.

Although 5 to 10 wpm should suffice for emergency use, and 13 wpm is required for a General Class Amateur licence, the serious operator will want to go higher. Western Union telegraph schools required 14.4 wpm for graduation. A commercial operator's licence required 16 wpm. US Army field operators required 20 wpm, as does the Extra Class Amateur Licence. Army fixed base operators required a 35 wpm speed.

Many experienced Amateur operators normally use 25–30 wpm, and some 35–40 wpm. Commercial press operators worked hour after hour at rates of 50–60 wpm, and the top recorded speed is about 75 wpm.

Whatever goal you set for yourself, be patient – learning takes time. Few people learn equally rapidly or well. Don't settle for too low a goal.

MM



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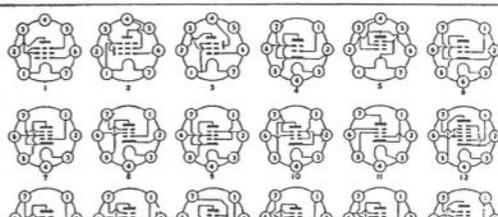
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4948	6.3	0.175	120	7.5	120	2.1	2	—	5.0	87C	U.S.A.
7033	6.3	0.3	250	4.5	100	7.3	2	—	1.8	87C	U.S.A.
7034	6.3	0.3	150	5.5	71	9.0	2	—	—	87C	U.S.A.
7056	10.5	0.15	200	9.5	150	2.8	180V/1	400	6.2	87C	U.S.A.
7167	10.5	0.09	125	10.0	80	1.4	1	—	0.7	87C	U.S.A.
DAF81	1.2	0.04	47.5	2.4	47.5	1.5	0	600	0.7	87C	U.S.A.
DF781	1.2	0.04	47.5	2.4	47.5	1.5	0	250	0.85	87C	U.S.A.
EF67	6.3	0.15	250	7.4	100	2.9	100V/1	1200	4.6	87C	European
EF67	6.3	0.175	120	7.5	120	2.5	2	340	5.0	87C	European
EF67	6.3	0.15	250	9.2	100	2.3	80V/1	1000	2.6	87C	European
EF67	6.3	0.3	12.4	3.0	4.3	1.1	0.7	150	1.9	87C	European
EF68	6.3	0.3	11.8	2.0	4.3	0.7	0.75	200	1.7	87C	European
EF68	6.3	0.175	120	7.5	120	2.5	2	340	5.0	87C	European
EH90S	6.3	0.3	150	4.5	75	9.0	0	—	—	87C	European
EH90S	6.3	0.175	120	5.5	120	3.5	2	—	3.5	87C	European
H144	6.3	0.3	250	10.0	250	2.4	2	1000	2.5	87C	French
S472	6.3	0.3	250	10.0	250	2.5	2	900	2.5	87C	Edinw
S472	6.3	0.3	600	1.9	600	1.2	—	—	6.3	87C	Edinw
T551	4.3	0.175	150	7.0	140	2.2	3	420	4.3	87C	European
YD5	1.4	0.025	90	1.65	90	0.5	0	1400	0.85	87C	C.E.C.
ZD35	1.4	0.025	90	1.1	90	0.4	0	1400	0.4	87C	C.E.C.
T837	12.6	0.7	500	60.0	0	30	6.5	—	3.5	87C	Soviet



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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

London Calling Overseas

The item in MM31 (p.48) about the 'broadcast from London in Morse every Sunday' immediately struck a chord. I well remember taking down the weekly programme details of the BBC Overseas Service sent out in Morse on, I think, one of the GK series in the 36 metre band.

This was around 1941, when I was a 2nd Op on a BI cargo ship on the Indian Coast trade. They were sent out during the midnight to 4 a.m. watch which would be about five hours ahead of UK time. I originally just happened to be tuning around and picked them up by chance. I then made a habit of taking them down for use when listening to the BBC.

I don't remember seeing any advertisement such as that found by J. Brunton, but I can vouch for the fact that the programme details were sent out in Morse and that good use was made of them.

*Chris Hammett G3AWR
Newcastle-on-Tyne*

Abbreviations & Procedures

I notice that Bill Welsh, W6DBB, says in the November issue of *CQ* magazine: 'Many newer amateurs add the letter N after the invitation to transmit sign (the letter K). There is no recognised and

approved meaning of this practice in the International Morse Code. When the Novice bands were established during 1951, many of us did add the letter N after the letter K to indicate that we only wanted a Novice (N) to answer our CQ calls.'

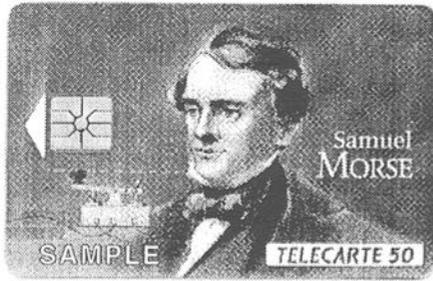
I now remember that when I asked what the N meant, when I came to North America, I was told that in the Novice bands it meant 'Novices only please', and outside the Novice bands it meant 'I have recently upgraded from Novice and haven't broken the KN barred habit.' I had forgotten this incident, but had retained the feeling that there was something wrong with the use of KN barred for other purposes in amateur contacts. However, it seems to have attained respectability now in the best of circles, proving that Morse is dynamic like other living languages.

*Bob Eldridge VE7BS
Pemberton, BC, Canada*

SAS Communications

The following two extracts from a book about the SAS may be of interest to readers of *MM*. 'Rather than use voice when sending messages back to base by radio, the standard SAS method is "hands-on" using a Morse key. The code has been used by Britain's SAS as its primary method of communication since

Morse Phone Card



I'm sending you a phone card issued by France Telecom in memory of Samuel Morse. 'Telecarte 50' indicates 50 time units.

Henri Jacob F6GTC, Hoenheim, France

the Regiment's early days in the desert of North Africa. Morse has a greater range than voice transmissions, and it can be encoded, making it an ideal means by which to pass secret messages. The code is, above all, secure.

'All SAS troopers must be trained to British Army Regimental Signaller standard. This involves being able to transmit Morse code messages at a minimum of eight words a minute.'

The book is *Fighting Skills of the SAS* by Mike Robinson, published by Sidgwick & Jackson, London, 1991.

*Tom St John-Coleman
Braintree, Essex*

Newfoundland Memories

I started work with Newfoundland Postal Telegraphs in 1921, twenty years before John Hann (MM30, p.45), and before the wireless system he described was introduced. At that time, the head office was at St John's and was equipped with all necessary connections to operate the telegraph line to Port-aux-

Basques. It also held all the equipment necessary to energise the 500 ohm relays with voltaic cells used in the individual offices to energise the local sets. The batteries (cells) used in those offices were approximately 2-gallon size.

I have no documentary evidence of exactly when wireless replaced the land-line across Newfoundland, but it was some time in the mid 1930s. The company was unable to give satisfactory service due to a combination of deteriorating equipment, lack of repairs and bad weather. With a combination of horrible weather and the approaching recession, it became plain that something had to be done, and in a short time wireless was substituted.

There was a wireless station on Horse Island in 1921 which served the sealing ships operating in the northern icefields. Commander Otis Bartlett was the operator there at the time and he was later awarded some kind of medal for his effort of 48 hours continuous

during the Viking disaster. The wireless operator on the S/S *Viking* was Clayton King who had both legs frost-bitten at the time. However, he survived and lived at St John's where he passed away only a couple of years ago.

Denis Ryan

Placentia, Newfoundland

(John Hann tells us that the Newfoundland communications system, as it once was, is no more. It has given way to high-tech telephone systems and FAX circuits. The wireless system was completely removed in the 1970s. – Ed.)

Icelandic Mystery

Here's a story from the past to set you thinking! In the early hours of 9 June 1928, the weather was fine all around Iceland, with nothing unusual going on at Reykjavik Radio/TFA. Radio Officer Hallgrimur Matthiasson was expecting another quiet shift when, at 0247Z, a clear SOS was heard over the air. The sender's name, however, was too muddy to copy.

Hallgrimur immediately called back asking who sent the call. The trawler *Imperialist* replied, 'Menja is sinking. We're off to help.' (The trawler *Menja* was fishing on the same bank). It transpired afterwards that the *Menja's* W/T set went down some days before the *Menja* did. Who, then, made the call? Was another ship in distress at exactly the same time? Or did the signal come from the Twilight Zone? Will we ever know?

Incidentally, the Icelandic trawlers in the 20s fell into two groups, with each group using its own code to inform its members about their catch and relat-

ed matters. Most of them had W/T, and the aerial construction too divided them into two groups.

Those run by the Hellyers brothers used sausage-shaped aerials (multiple wires held apart by girders or hoops), while those of Icelandic ownership had bar types (two to four wires held apart by bars). The flat aerials withstood icing conditions much better than the sausage shaped ones.

Coming right up to date, the Icelandic trawlers currently fishing in international waters north of Norway use a code as well. The name of our President, Mrs Vigdis Finnbogadottir, means a very good haul while the name of our Foreign Minister means a very small haul. The Fisheries Minister stands for a slightly above-average haul!

Reynir H. Stefansson
Reydarfirdi, Iceland

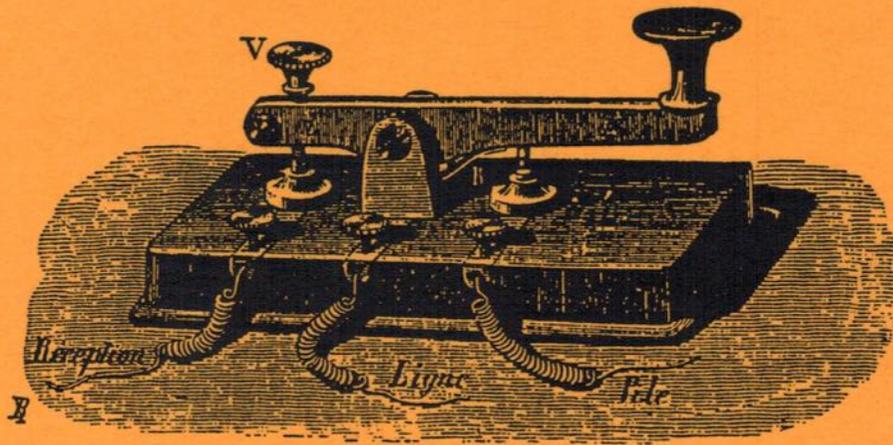
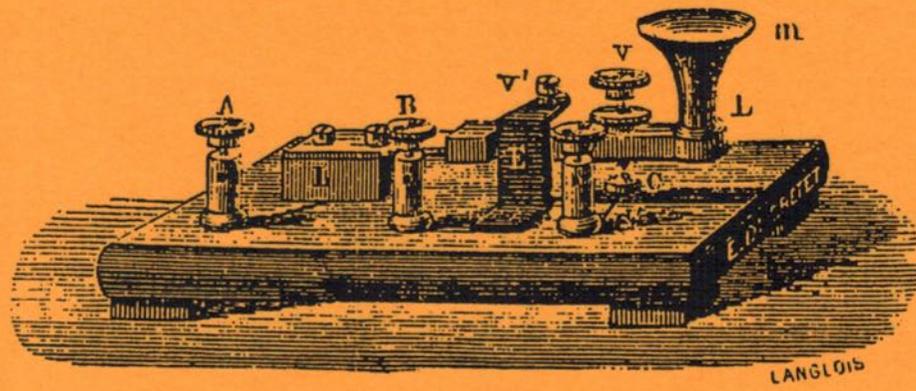
Left-handed Bugs

My thanks to David Pennes (MM31, p.44) for his response to my earlier question about left-handed semi-automatic keys. I wrote last year to the Vibroplex Co., asking if they could make a left-handed bug for me. The answer, of course, was 'no'.

I have also tried to find out if the only French bug, the Vibro-Mors, was ever made in a left-handed version, but it appears that it wasn't.

It seems that a number of manufacturers in the past did make a left-handed model on special request, but they never made a specific model, with a specific name, for left-handed users.

Boris Real F5TFS
Solesmes, France



Two keys from the Ducretet & Lejeune Catalogue for 1894

Contributed by Dennis Goacher G3LLZ

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