

broad indication of the types of products they produced.

The Story of the Key, which is Volume 1 in a planned series of reprints collecting together 'The Best of MM', is

in A5 soft-cover format, and contains 60 pages. It will be available from early March through the MM Bookshelf, price £3.95 post-free to UK addresses, £4.25 overseas by surface mail. GCA

McElroy Chart of Codes and Signals

This is a poster which has fired the imagination of many a Morse enthusiast over the years, featuring as it does the alphabets for International, American, Greek, Russian, Japanese, Arabic and Turkish versions of the Morse code. There are also tables of aeronautical and general 'Q' signals, International flag signals, semaphore code, telegraph and military phonetic alphabets, and more.

It was produced originally in 1943 by the McElroy Manufacturing Corporation, maker of the 'Mac' keys, and was inscribed 'Respectfully Dedicated to the Radiomen of Our Armed Forces and Maritime Service'. It was printed in six colours on a linen backing and measured 25 inches wide by 38 inches long.

The chart has been reproduced in various publications in the past, such as WWII *ARRL Handbooks*, and more recently in Dave Ingram's *Keys, Keys, Keys* (now out of print) and in *McElroy - World's Champion Radio Telegrapher*. All unfortunately suffered from having been so drastically reduced in size

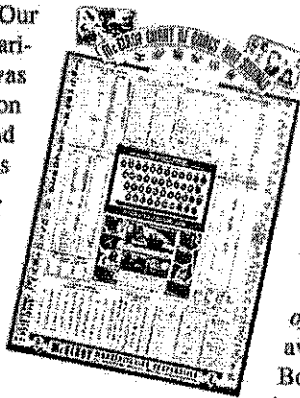
from the original, that large parts were very difficult to decipher.

Now, J.F. Rilinger KC1MI, a nephew of the late Ted McElroy, has

produced a coloured version measuring 9 x 14 inches - still not as large as the original, but very much more readable. If there is sufficient interest, a full-size reproduction may be produced in the future.

The *McElroy Chart of Codes and Signals* is available from the MM Bookshelf, prices including post and packing are £10.65 (inc. VAT) to UK addresses, £10.99 (inc. VAT) elsewhere in the EU, £9.35 to the rest of the world by surface mail.

GCA



KEN, ZL1BLK, LENT ME his copy of a recent book, *McElroy, World's Champion Radio Telegrapher*, by Tom French W1M0. Old timers, and students of telegraph history will know the name McElroy well.

But if it means nothing to you, know that Ted McElroy won the last World Championship Code Tournament ever held, at Asheville, North Carolina, on 2 July 1939, taking down hard copy of newspaper text at an official speed of 75.2 wpm.

This record still stands. An astonishing feat! To see how astonishing, run the program TSEND I distribute with my Morse teaching software, and send a file at that speed. Could anybody really copy that?

Scepticism

So, 55 years later, there is often scepticism. Is the computer Morse we can send today REALLY like what Ted would have heard? How was his speed computed? (Several different standards were in use in those times.) And if he could, what was it about this remarkable man that enabled him to do this? Was he born gifted, or did he have some secret learning technique?

Tom's book answers those questions, and more. Ted McElroy was born in 1901, and grew up in a tough neighbourhood in Massachusetts. As soon as he was 15, he left school to become a

The Last Great Telegrapher

by Dr Gary Bold ZL1AN

Western Union messenger boy, delivering telegrams.

In those days, all such lads aspired to become telegraphists themselves. Ted wrote later 'Good Morse operators in the old days came into existence by the laws of economics. They simply HAD to be good at about 1 or 2 cents per message to make money, and good Morse operators were the elite of working people.'

American Morse

They DID make money - remarkable money for the times in which they lived. In those times, 'Morse' meant American Morse, the original dialect that was used exclusively in US landline telegraphy. Now almost extinct, it was supplanted everywhere else by 'Continental' (now 'International') Morse.

US telegraphers used it exclusively

until their last manual telegraphy line closed down. Unfortunately for us, Ted had no revolutionary code-learning method. He learnt, as thousands of others had done, only from obliging telegraphers giving him code practice during their breaks.

Later, he was quoted in Candler's advertisements as 'owing everything to this code learning method' but there is no evidence that he was ever a pupil of Candler. He apparently agreed to this in return for Candler's endorsement of his own products.

First Record

He effortlessly became a fast operator, learned Continental code too, and had a succession of telegraph and radio jobs using both. By the time he was 20, he was a VERY fast operator indeed.

Hearing there would be a code receiving contest at the Boston Radio Exposition on Saturday night, 6 May 1922, he talked his boss into giving him the night off, as it 'might be fun to enter'. At the time Ted was a landline telegraphist, working exclusively with American Morse, reading on a sounder. But this was a CONTINENTAL code contest, received on phones, sent as audio tones.

Ted said later he hadn't heard any Continental code for about a year. Nevertheless, after working all day, he set a new world record of 51.5 wpm (the previous record, 49.5 wpm, had been set by Jose Seron in New York, two months previously). Thus started a kaleidoscopic life of contests, (not all of which he won) exhibitions, and business exploits.

MM44 -- February 1996

First Mac Key

In 1934 he started producing the 'Mac Key', a bug which, as he said later was 'Not as good as the genuine Vibroplex, but it did work, and it was within the Ham's price range'. Sales were, of course, helped by the fact that he advertised himself as the 'World's Fastest Radio Telegrapher', and stamped this on the bottom of his keys.

In 1925 he qualified as a Radio Amateur, holding the callsign W1JYN, but despite the fact that he was known and revered by thousands of US Hams from tournaments and exhibitions, there is no evidence that he ever operated on the air himself.

Throughout his life he awed and astounded all who watched him take down code. His ability to copy behind was extraordinary. He sometimes listened for 15 seconds at 'word per second' speeds before even starting to type!

Ultimate Achievement

A cunning competitor, on one occasion he distracted other contestants by drinking a glass of water in mid-test - giving the impression he had dropped out - only to start up again when their concentration lagged!

But it's for his ultimate achievement on that evening in Asheville, in 1939, that most remember him. The background and description of that last contest, recounted in detail by Tom French, is fascinating.

Good as Ted was, there were others - a very few - who were almost as good. And one, Levon MacDonald W8CW, stayed with him almost to the end. At the finish, the judges declared McElroy

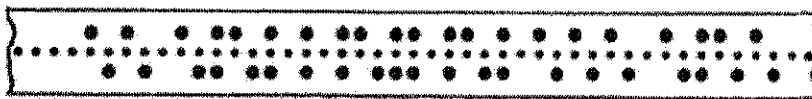


Fig. 1 - Wheatstone tape spelling out the word 'McElroy'

to be the winner at 75.2 wpm. And his record has never been broken.

Wheatstone Tape

The code came from a Wheatstone tape machine, and probably keyed a General Radio audio oscillator at a frequency of 1000Hz. Punched half-inch paper tape was pulled through the Wheatstone reading head by a motor-driven sprocket which engaged in a row of centre punched holes - one hole per dot-time.

A short section is shown in Fig. 1. Dots have two in-line holes, above and below the centre sprocket holes. For dashes, the lower hole is offset one sprocket hole to the right. One sprocket hole separates letters, and 3 holes separate words. The section shown spells 'McElroy'.

How was the speed computed? The number of sprocket holes passing through the machine in the test were counted, and divided by 24 to give the total word-count. This method, and the speed Ted attained, are confirmed by all contemporary accounts.

Copied Whole Words

He really did what they said he did. EXCEPT that - here's the interesting bit - dividing by 24 specifies the standard word PARIS followed by a 5-dot word-space, not the 7-dot space universally used now. Neville, ZL2AKV confirmed in the last column that a 5-dot word

space was also used in New Zealand landline telegraphy.

To convert Ted's speed to the modern standard, a simple conversion is to multiply by 24/25, giving 72.2 wpm. This is still, of course, extraordinary.

But it might not be the whole story. There is no doubt in my mind that Ted, and those other strangely gifted men didn't copy letters, they copied WHOLE WORDS. They listened to individual staccato blasts (which is what Morse words sound like at those speeds) and put down what the word sounded like.

For example, on one occasion Ted typed 'inefficient' for ineffective and HE thought of that as one error. WE would think of it as 5 errors, with 5 characters wrong.

Could it be that if Ted's mind had had slightly longer to crystallise the words using the modern, longer, word-space, he might have copied just as fast, even though the words themselves would have been slightly faster?

Computer Keyboard Faster?

I ponder this because Bill Eitel, W6AY, founded the '5 Star Operator's Club' in the 1970s. To get in, you had to demonstrate ability to converse at 80 wpm, and there were many members. It is documented that an elite few could do 100 wpm.

Of course, this was 'head copy', which is easier than hard copy - but even so, they could do it. I personally

EARLIER THIS YEAR, I was privileged to have a conversation with Harry Robinson, W2AZ, a 70 year member of ARRL, who was first licensed in Asheville, North Carolina in 1929. During our chat, Harry told me about the Asheville Hamfest and how he stood next to Ted McElroy as he set a new CW copying record during a special competition on July 2, 1939.

At 88 years of age, Harry is one of only 4 or 5 remaining eyewitnesses from that historic day. You could hear the excitement in his voice as he told me his version of this story.

Harry also promised to send me a copy of an account originally published in The ARC, the newsletter of the Asheville Amateur Radio Club, North Carolina, dated August 2, 1939. The following is an excerpt from that article:

"The code machine had been adjusted to take the high speed and the Judges made sure that the text had been sealed and was intact just as it was received from the FCC office in Boston. W4HX sends a few preliminary centimeters of tape through the machine and the contestants adjust their "cans." One can observe intent concentration in the faces of all the contestants. W4HX glances at his stopwatch, says "ready", and pulls a switch and a code contest that is destined to make history begins.

The machine is hitting up at 40 wpm and McElroy, McDonald, W4CRV

McElroy Sets World CW Copying Record - 75.2 wpm

by Tony Ricicki, W2VRK

and one or two others are transcribing effortlessly. Then, W4HX, at the machine, steps it up to 45wpm. One or two contestants sigh, and take off their "cans." At 50 wpm, the staccato clicks of the typewriters at the far end of the table become piano, then pianissimo. Now, there are only 2 contestants left plus McElroy.

At 55 wpm, they increase their tempo but W4CRV slackens noticeably and resigns himself to the inevitable. All the while, McElroy and McDonald seem to be playing a symphony with four hands, so perfectly that their typing seems to blend into one cacophony of sound.

As the machine is stepped up to 60 wpm the silence among the spectators becomes almost eerie. The machine drones on and the two contestants pound relentlessly.

At 65 wpm, they are approaching the world's record. Bulldog like, McDonald hangs on as McElroy is keeping an even rhythm. At 70 wpm

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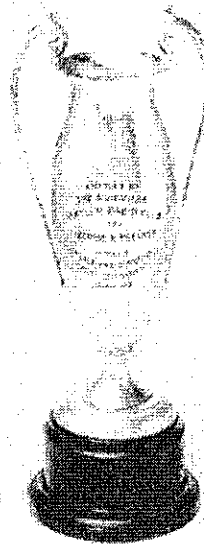
there is discord in the typing of the two contestants. A glance of the eye reveals that McDonald is losing his timing but McElroy with only a momentary pause to adjust, gathers more momentum. McDonald takes off his "cans" and moves a shaking hand across a perspiring brow and concedes victory to McElroy.

Meanwhile, the machine does not stop. At 75 wpm, McElroy, having already eclipsed his former record of 69 wpm at Brockton, Massachusetts, in 1935, tires and slackens his speed. At 80 wpm, he copies furiously for a breath or two and then halts the movement of his hands on the keyboard.

Amid the silence, W4HX stops the machine and the full import of the occasion dawns upon the gallery. There is an almost deafening volume of applause. A new record in receiving code had been established."

(Theodore Roosevelt McElroy (1901-1963) was a world famous code copying champion, code instructor, and manufacturer of straight and semi-automatic keys. He possessed the extraordinary ability to decipher code and transfer it to paper with his equally gifted talent as a typist).

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