

## How do I?

### An occasional series

#### **This week: Why do Trains Blow "Q" at Grade Crossings? and other CW info!**

A very experienced ham operator and veteran CW (continuous wave) aka "Morse Code" user asked one day why trains blow the letter "Q" on their horns/whistles at grade crossings.

The short answer is they don't. Or rather they do, but it's a coincidence. Confused yet? If so, don't feel bad. A few weeks ago I was on US 15 near Gettysburg, PA and saw a pickup truck with a Pennsylvania license plate that said "CW BUFF". I looked again and observed no antennas, call signs, other ham decals etc, and finally realized he was a buff of the other CW-the American Civil War.

Samuel F.B. Morse created the original Morse code in the United States in the 1840's for use on the newly perfected electric telegraph.

The original code was:

A . _	O . . .
B _ . . .	P . . . . .
C . . . .	<b>Q . . _ .</b>
D _ . . .	R . . . .
E .	S . . . .
F . - .	T _
G _ _ .	U . . _
H . . . . .	V . . . . _
I . . .	W . _ _ .
J _ . _ . .	X . _ . . .
K _ . _ .	Y . . . . .
L _ _ _ (long dash)	Z . . . . .
M _ _	
N _ .	
1 . _ _ .	6 . . . . . . .
2 . . _ . .	7 _ _ . . . .
3 . . . . _ .	8 _ . . . . .
4 . . . . . _	9 _ . . . . .
5 _ _ _ .	0 _ _ _ _ (very long dash)

This code was used in the United States through the 1960's. It was supplanted in railroad service by radio and telephone and was no longer used by commercial railroads by sometime in the 1980's. I thought I had read the original Morse Code was modified in the 1850's to make some character's easier to understand, but I cannot find that now. Morse code and telegraphy was used to send messages. The initial purpose was to send messages faster than the US mail or express services could carry them. Railroads starting with the Erie Railroad in the 1850's used it to dispatch trains. From that point on there were essentially two telegraph services in the United States: the privately owned and operated railroad telegraph and the for

commercial use “public” telegraph services operated by Western Union and others. By the Civil War every common carrier railroad had telegraph poles along the right of way. Sometimes with a single wire for railroad use, but more often with multiples wires carrying not only railroad message traffic but whomever had contracted with the railroad to install wires. In larger towns there were separate railroad and Western Union operators but in small towns the railroad operator often did all the work.

Morse code and the telegraph travelled across the ocean to Europe. Other countries and companies adopted their own version of the Morse Code. Friedrich Clemens Gerke created a version in 1848 for the German-Austrian cable system. In 1858 Bunnell finished laying the first transatlantic cable. The first transatlantic telegram from Queen Victoria of England to President James Buchanan of the United States was delivered to President Buchanan while he was staying at the Bedford Springs Hotel in Bedford, Pennsylvania.

The Gerke code was better suited for the underwater cables and as cable service spread from Europe to Africa and Asia, it became the most commonly used code. The original Morse code was still used in the United States. Operators who handled transatlantic traffic had to know both codes!

Radiowaves do not know of or recognize international boundaries. So as Marconi’s perfected equipment spread around the world, people needed to understand each other, The Gerke Code, also known as Continental Morse, became the International Morse code in 1912.

### International Morse Code

1. The length of a dot is one unit.
2. A dash is three units.
3. The space between parts of the same letter is one unit.
4. The space between letters is three units.
5. The space between words is seven units.

A	• —	U	• • —
B	— • • •	V	• • • —
C	— • • — •	W	• — —
D	— • •	X	— • • —
E	•	Y	— • — —
F	• • — •	Z	— — • •
G	— — •		
H	• • • •		
I	• •		
J	• — — —		
K	— • —	1	• — — —
L	• — • •	2	• • — — —
M	— —	3	• • • — —
N	— •	4	• • • • —
O	— — —	5	• • • • •
P	• — — •	6	— • • • •
Q	— — • —	7	— — • • •
R	• • — •	8	— — — • •
S	• • •	9	— — — — •
T	—	0	— — — — —

## The difference between the Morse and the Continental (International) codes

Morse	Continental
C . . . .	C _ . _ . .
F . _ . .	F . . . _ . .
J _ . _ . .	J . _ . _ . .
L _ _ _ [long dash]	L . . _ . . .
O . . . .	O _ _ . . . .
P . . . . .	P . _ . _ . .
Q . . _ . .	Q _ . _ . . .
R . . . . .	R . _ . . . .
X . _ . . . .	X _ . . . . .
Y . . . . .	Y _ . . . . .
Z . . . . .	Z _ _ . . . .
1 . _ . . . .	1 . _ . . . . .
2 . . . . .	2 . . _ . . . .
3 . . . . .	3 . . . _ . . .
5 _ . . . . .	5 . . . . . . .
6 . . . . . . .	6 _ . . . . . .
7 _ . . . . .	7 _ . . . . . .
8 _ . . . . . .	8 _ . . . . . .
9 . . . . . _	9 _ . . . . . .
0 _ . . . . .	0 _ . . . . . .

As you can see, **Q** is not the only letter that is different.

Railroad Morse remained in use in the US and on the great lakes, but all radio operators and ocean going ships after 1912 used the International Code.

Train whistles were invented by George Stephenson in 1833. I cannot find when the first formalized system of using whistles was implemented, and the signals varied by railroad for decades.

The following is the current Union Pacific rules (and any other railroad using the GCOR-General Code of Operating Rules).

Sound	Indication
Succession of short sounds	The whistle is sounded in an attempt to attract attention to the train. It is used when persons or livestock are on the track at other-than-road crossings at grade.
=	When train is stopped. The air brakes are applied and pressure is equalized.
= =	Train releases brakes and proceeds.
o o	Acknowledgment of any signal not otherwise provided for.
o o o	When train is stopped: means backing up, or acknowledgment of a hand signal to back up.
o o o o	A request for a signal to be given or repeated if not understood.
= o o o	Instruction for flagman to protect rear of train.

=====  
=====

o =  
= o

The flagman may return from west or south.  
The flagman may return from east or north.  
Train is approaching public crossings at grade with engine in front.  
Inspect the brake system for leaks or sticking brakes.  
Train is approaching men or equipment on or near the track, regardless of any whistle prohibitions.  
After this initial warning, "o o" sounds intermittently until the head end of train has passed the men or equipment.

= LONG  
o SHORT

As you can see, ==o= or the letter **Q** is the modern signal for a grade crossing. The whistle/horn starts 15-20 seconds but not more than 1/4 mile before the crossing and continues until the locomotive is clear.

This is purely coincidence and is the result of 175 years of rule making. You could also ask why trains sound "T" and "I", among others.

Catch ya on the air!