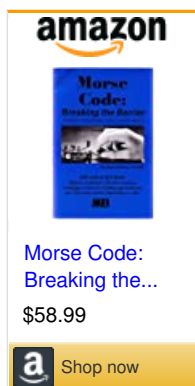


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**Forget Frustration: Gain Valuable Morse Skills  
And Increase Your Amateur-Radio Pleasure**

**By Dave Finley, N1IRZ**

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Amateur license restructuring is here. You no longer need to pass a 5-, 13-, or 20-word-per-minute (wpm) test to gain full operating privileges. Passing a written test gets you everything. However, there are good reasons why you should do more than that. Having a level of Morse proficiency that is of real use on the air, meaning that you can copy at 12-13 wpm or more, will add immeasurably to your enjoyment of Amateur Radio.

Such rewarding HF activities as DXing, contesting and QRP operating still rely heavily on CW. Thousands of hams enjoy CW for its own appeal as a relaxing mode different from most other means of communication. And even on VHF and higher frequencies, you'll find that exciting activities such as Moonbounce and weak-signal work still require Morse skills for full participation.

The pressure to reduce the code-speed requirements came from the widespread perception that getting to 13 or 20 wpm is a nearly insurmountable barrier. **That perception is wrong.** For little more investment of time than it takes to pass the 5-wpm test, you can gain real, higher-speed code proficiency that will enhance your enjoyment of the hobby.

*Most of what you've been told about learning Morse Code is wrong -- dead wrong.* Amateur radio operators traditionally have used the slowest, most frustrating, most painful and least effective techniques possible for gaining code proficiency.

You can gain real code proficiency. You can do it in a reasonable amount of time and with a minimum of frustration and pain. In order to do so, you must approach code training from a different perspective and use different techniques from those common among amateurs for the past half century.



It will require work (just as it does to get to 5 wpm). You will have to commit yourself to at least one 15-30 minute training session every day until you reach your goal. You may succeed in a month or in several months; individuals differ greatly. Without this commitment, however, you may as well not bother.

So what's new here? By using a code training method devised by the German psychologist Ludwig Koch some 60 years ago, you will progress as quickly as you possibly can, with ample reinforcement and little frustration. By understanding this method and how it builds your code proficiency, you will know why you have to spend time practicing and you'll be able to make a reasonable prediction of how long the total effort will require.

We're going to start on your road to success by throwing some time-honored ham-radio traditions onto the trash heap where they belong. These are:

- **Slow (5 wpm) code** -- It ought to be illegal to teach anyone code at 5 wpm. Every minute spent toying with 5 wpm code is irrevocably wasted. In addition, as we'll see later, starting with slow code is a virtually-guaranteed path to frustration and quitting. Morse at 5 wpm and Morse at 15 or 20 wpm are completely different critters, and you don't want to waste time on the wrong one.
- **Charts, mnemonics, musical cues and other "memory aids"** -- These things make you think about what you're doing while trying to copy code. That is deadly to proficient copying.
- **Code tapes** -- In very short order, and unconsciously, you'll memorize the tape. This will lull you into false confidence in your ability. That false confidence will be quickly shattered when you hear transmitted text that you haven't memorized.
- **Copying QSOs off the air** -- You don't know the speed of code you find on the bands, and much code on the air is pretty badly sent. All this makes it useless for training purposes. Formal code-practice sessions, such as those on W1AW, are OK, however.

Now that you know what you're **not** going to do, let's start examining just how you can best gain code proficiency.

### The Mechanics: Just what is code training, anyhow?

Go to the shack of a veteran CW operator, or visit the CW station at a club Field Day operation. Watch people copy and send code at 30 to 35 wpm. You'll notice they're pretty relaxed about it; they're not sweating each character as it comes out of the speaker and they're not racking their brains to "figure out" what's being sent. Code has become second nature to them.

That's the key to code proficiency. Copying code must be a thought-free process. When you hear a character, you should know, without thinking, what it is. It should be a **reflex**. In fact, copying above about 10 wpm can only be done by reflex. Above that speed, thought processes are too slow to succeed.

That's why slow code is a deadly trap, and why traditional amateur methods of code training are so painful and frustrating. Most hams are told to memorize all the characters, then start building their speed. When you do it this way, you build a "lookup table" in your brain, comparing each character you hear with those in the lookup table until you find a match. This process shuts down from overload at about 10 wpm. That's why people experience a "plateau" at 10 wpm, and don't see any progress for weeks or months.

Those who finally get over that "hump" and progress beyond 10 wpm do so because, through constant practice, they have begun to copy code by reflex instead of by thought. They are the lucky ones; this 10 wpm barrier is where many folks give up out of frustration.

Code training, then, should completely bypass the lookup-table phase and begin by building copying proficiency as a reflex. This was recognized in the 1930s by the German psychologist Ludwig Koch, who devised the most efficient method known for Morse training. It's his method, and how you can use it, that we're going to examine in detail.

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## Morse Training by the Koch Method

Koch's method is a simple, direct way of building reflexes. However, it requires either a computer and Morse software or a personal trainer. That's why it was overlooked for so many years. Now that computers are commonplace, it should become the standard Morse training method. Here's how it works:

You start out by setting up your computer (or a microprocessor-based code tutor machine) to send you Morse characters at 20 wpm and at an overall sending speed of at least 15 wpm. You then get out your paper and pencil and have the machine start sending -- but only two characters. That's right, for your first sessions, you'll only have two choices. Copy on paper for five minutes, then stop the machine and compare what you copied with what the machine sent. Count characters and calculate your percentage of correct copy.

(Here is a GREAT Koch-method training software package: [G4FON's CW Trainer](#) from [G4FON, Ray Goff](#). NOTE: I HIGHLY RECOMMEND THIS TRAINING METHOD - Tomas, NW7US)

(See [Setting SuperMorse to do Koch](#) for tips on using the Koch method with SuperMorse.)

If your score is 90 percent or better -- congratulations! You just learned your first two characters, and, importantly, you learned them at full speed. You'll never have to learn them over again. If you didn't make 90 percent, practice some more. As soon as you can copy the first two characters with 90 percent accuracy, add a third character to your practice. Your accuracy will drop as you work on assimilating the new character, but it will rise again to 90 percent or better. Then you add the fourth character, and so on.

This method does not allow you to build that lookup table in your brain. To copy at full speed, you **must** build the reflexes in order to achieve 90 percent accuracy. And that's what you're spending your time doing -- building reflexes. Think of it as a parallel to perfecting a tennis swing or mastering a gymnastic routine; you're practicing until you get it right. The Koch method of building code proficiency character-by-character is similar to standard methods of teaching touch typing, another skill that must be reflexive.

This is a very individual method of training -- you progress at your own best speed, and spend only the time required to gain each new character. This means that you will waste no time in reaching your goal.

How much time is required? That will depend on the individual. Koch himself, with hand-picked students, got a group to master 12 wpm code in a mere 13.5 hours. You probably won't match that, but that's much faster than any other method in the psychological literature. You can get an idea of how long it's going to take after you've mastered a few characters. Keep track of your training sessions (some software will do this for you) and calculate your hours-per-character rate (or characters-per-hour if you're really fast!). That, multiplied by the 43 characters in the amateur Morse test, will give a rough idea of how long it's going to take.

While the Koch method is the fastest method of Morse training, speed alone is not its principal advantage. Its principal advantage, and a major difference from other methods, is that it provides you with constant positive reinforcement. This begins with your realization, after mastering the first two characters, that you **can** copy code at 15 or 20 wpm, because you just did it. After that, each new character mastered is further proof of your progress. Contrast that to slowly trying to build speed up from 4 or 5 wpm, then hitting the plateau at 10 wpm and seeing no progress for a long time. With the Koch method, frustration is at a minimum.

Constant testing is necessary to ensure that you maximize the effectiveness of the Koch method. You must copy on paper, so you can grade yourself. Remember, if you score 90 percent accuracy or better, add another character. If you score any less than that, try again. By constantly testing yourself on continuous copying of at least five minutes, you know exactly how you're doing and exactly when you should add another character. This results in the fastest progress possible.

Naturally, with the Koch method, you'll be copying random groups of characters, rather than words, until you've mastered the entire character set. If your software allows, make these groups of random length, rather than a constant stream of five-character groups. This will ease the transition from random groups to actual words. Yes, there is a difference in the rhythm and "feel" of words and random groups. Once you've become accustomed to copying words, you should start copying sample QSOs, which are the format of the amateur tests. Pay special attention to callsigns, locations, and numerals; these are the types of things that can form questions on the test.

As you proceed toward your goal, remember that some days are just going to be better than others and some characters will take longer to assimilate than others. You know, however, that you can reach your goal because you've already mastered some characters and proven that copying at full speed is something you can do. Keep in mind that what you're doing is building reflexes, and that takes time. The amount of time you require has nothing to do with your intelligence; it's just how long it takes for characters to "sink in" and become part of your reflexes.

So there it is -- your path to real, useful Morse Code proficiency. After you've used this method, and start enjoying the wonderful world of HF radio, try a few CW QSOs. With Morse code developed as a reflex, you may just find that you really enjoy using it on the air. After all, you've gained proficiency without the frustrating ordeal that most hams have endured for decades. See you on the HF bands!

**Questions?** They're probably answered in [Morse Code: Breaking the Barrier](#), the author's complete book on code training and CW operating, published by [MFJ Enterprises, Inc.](#)

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## A Personal Note

These ideas may sound very bold and unconventional, but I know they work, because they worked for me.

I fell in love with radio in grade school, but was kept off the air for 30 years because I found traditional code training just too frustrating. During those decades, I tried several times to learn Morse, but every time gave up in frustration and disgust -- my progress was just too slow.

In 1991, I became one of the first 500 people to enter ham radio by way of the no-code Technician license. After becoming bored with repeaters and HTs, I decided to make one last attempt to master the code. Fortunately, I stumbled on information about Koch's method, and found that it was the only thing that would work for me. In 1993, after diligent work at my computer, I took my first code test and passed the 20 wpm exam on the first try.

I became very curious about why Koch's method had worked for me when all else had failed. That sent me to libraries to read the now-aging psychological literature about Morse training. I soon realized that the Koch method achieves its speed through directness; if you want to copy reflexively at 15 or 20 wpm, then just start building

those reflexes from the start. I also realized that it provides much more positive feedback than any other method, so you can keep your motivation and a "can-do" attitude throughout your training.

This was knowledge I wanted to share with others, so I began giving lectures to amateur groups on the topic. I quickly found that, after my lectures, "old-timers" would come up and tell me that my ideas on the need for reflexes were absolutely right. Many said that the Koch method sounded similar to the intense code training they had received in military schools.

Probably the only reason Koch's method didn't become standard back in 1936 when he first published it was that the average individual had no way of implementing it. The personal computer has changed that, and the time has come for the Koch method to replace all others. I hope that the speed and positive-reinforcement aspects of the Koch method can cut down the code barrier to a much less formidable size.

Prior to the FCC's restructuring of amateur licensing, the percentage of U.S. hams who had passed at least a 13-wpm code test had long since become a minority and was dropping steadily. This "code barrier" was causing an unhealthy stagnation in the amateur ranks. Many readers of [Morse Code: Breaking the Barrier](#) wrote to tell me how the Koch Method had helped them overcome many years of frustration and upgrade their licenses. It was gratifying to hear of these success stories. Now, people can use the Koch Method, not because they have to pass a test, but because they want to increase their amateur-radio pleasure.

I cannot overemphasize my dislike -- even hatred -- for 5 wpm code. As I've outlined above, it is highly counterproductive to gaining proficiency at higher speeds. In order to go from 5 to 13 wpm, you have to start over again, even though you may not realize that while you're doing it. The worst aspect is that many people pass a 5-wpm test, then never go beyond that. Why waste your time learning a skill (slow code) that has no relevance to real (13+ wpm) code proficiency and is of almost no use on the air?

Finally, as I was using the Koch method and building my code skills, I intended to forget the code as soon as I passed the test. My 30 years of frustration had built up a bitterness about CW. However, about two weeks after getting my first HF rig on the air, I looked at my straight key and decided to try a CW QSO "just so I can say I did it." Guess what? I enjoyed it. My second CW QSO was with a DX station, and I was hooked. With the encouragement of a CW Elmer, I continued to enjoy the bottom parts of the bands, and now my microphone isn't even plugged into the rig!

If the Koch method could overcome three decades of bitterness and turn me into an enthusiastic CW operator, I think it's certainly worth a try on your part. Have a go at it. Maybe I'll find you on the CW bands and we can have a ragchew.

Best of luck, and 73.

Dave Finley, N1IRZ

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**GET THIS BOOK:** [Morse Code: Breaking the Barrier](#) - by Dave Finley - The book covers not only the Koch training method, but also the fascinating history of Morse Code and how you can enjoy using it on the air. "Morse Code: Breaking the Barrier" is a complete manual on Morse Code training and CW operating.

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