

# THE SIMPLY COMPLICATED HARMONICA

After the challenging content of last issue's column, I thought it might be time to look at something that seemed a bit easier—the harmonica. Boy, was I wrong! The simplicity of the harmonica turns out to be a deception. The harmonica, also known as a mouth organ, mouth harp, French harp or just a harp, is an easy instrument for the beginner since anyone can blow into it and sound like a musician but, to become a good player, you will face an unexpectedly steep learning curve. Well, OK, that's only if you want to understand what you are doing. But, what you've already learned about scales and chords is applicable to this experience as well. So first a little history, then some basics of this fascinating little instrument.

## A BRIEF HISTORY

The first harmonica patent was granted to Christian Friedrich Buschmann, a 16 year old from Berlin, in 1821. The instrument was a collection of steel reeds lined up horizontally in compartments to selectively channel air over each reed. The harmonica is one of a family of "free-reed" instruments that includes the accordion and concertina, the Indian harmonium and the mouth-blown sheng family of instruments from Southeast Asia, China, and Japan. In free reed instruments, you have to play a different reed for each note. This group is separate from another family of reed instruments that includes the saxophone, clarinet and oboe. For these, you are able to get different notes from the same reed.

The harmonica became very popular and was widely copied and modified. In 1826 a Bohemian instrument maker named Richter made what we now use as our modern diatonic harmonica. Richter's "Mundharmonika" or mouth organ, had 20 reeds placed two to a hole in each of ten holes with the blow reeds and the draw reeds mounted on separate sides of the instrument divided by a comb made of cedar. But the amazing thing was his choice for arranging the notes. To this day, the "Richter tuning" is still the standard for diatonic harmonicas.

## THE HARMONICA TODAY

Most of the harmonicas seen today follow the ten-hole twenty-reed Richter-tuned model. The Hohner Marine-Band model is the arch-typical example of this type of harmonica. The Hohner Company began manufacturing harmonicas in 1857. A few changes in the instrument have occurred since then, some quite recently. For instance, plastic or metal has replaced the wooden combs used in early models. This prevents air leakage caused by shrinkage and lip injuries caused by dragging expanded wooden combs across the mouth.

The harmonica is a diatonic instrument. That means that each harmoni-

ca is set up to play in a particular key. If you want to play in all of the keys you will need to have 12 different harmonicas. Figure 1 shows how the notes are laid out on a harmonica in the key of C. Each hole has two reeds. You sound one reed by blowing air into the hole and the other reed by drawing air out through the same hole. Since there are two reeds in each of the ten holes there should be 20 notes on the harmonica. But notice that hole-3-blow repeats the same note as hole-2-draw. So while there are 20 "positions" on the harmonica there are only 19 actual notes.

## THE SEARCH FOR THE MISSING NOTES

As shown in Figure 1 the harmonica covers a span of three octaves from the lowest note (1-blow) to the highest (10-blow). Three octaves should cover 22 diatonic notes but the harmonica, as I already told you, only provides 19.

This means that there are 3 notes missing on every harmonica. You can find the location of these missing notes simply by playing scales across the entire ten holes and noticing where you run into trouble.

Figure 2 takes us through the three octaves of scales on a C harp. To produce a C note, blow into the first hole. A draw on the same hole plays a D

and, as you would expect, a 2-blow produces an E. However, you will not find the next note you want—the F. That's the first missing note. Instead, the 2-draw skips to a G-note. The next peculiar thing that happens is that the 3-blow also produces the same G-note. Then, on to 3-draw you'll discover the next missing note when you wind up on B instead of A. You continue to alternate blow and draw until the transition between hole 6 and 7. There, you'll make 2 draws in a row. From then on the order of the air direction is reversed from blow-draw to draw-blow. Finally, you'll find the 3rd and last missing note at hole 10 where there is no B-note before the last C.

Blow	C	E	G	C	E	G	C	E	G	C
Hole Number	1	2	3	4	5	6	7	8	9	10
Draw	D	G	B	D	F	A	B	D	F	A

Figure 1. The arrangement of the notes on a 10 hole harmonica.

Blow	C	E	G	C	E	G	C	E	G	C
Hole	1	2	3	4	5	6	7	8	9	10
Draw	D	G	B	D	F	A	B	D	F	A
Missing		F	A							B

Figure 2. Locating the missing notes on a C harmonica.

## WHY IS THE LAYOUT SO WEIRD?

There is a method to this madness. This layout actually provides a major benefit—no matter where you blow on the harp, you get a C chord! Here's why: notice the names of the blow notes shown in Figure 1. They are all C's, E's and G's. Sound familiar? Remember from previous articles (check [www.folkWorks.org](http://www.folkWorks.org)) that the 1-3-5 major chords in the key of C are composed of C-E-G. This open chord is why the harmonica sounds good from the first time you blow on it.

There's a lot more to know about the harmonica such as the technique of cross-harp and other mysterious methods of playing in different keys without changing harps. There are ways to play notes that don't even exist on the har-

monica. I will continue this topic, so look for me in the next issue of folkWorks and, of course, stay tuned.

## Missing notes:

- Hole 2 has no F (the 4<sup>th</sup> note of the C scale).
- Hole 3 has no A (the 6<sup>th</sup> note of the C scale).
- Hole 10 has no B (the 7<sup>th</sup> note of the C scale).

## Other irregularities:

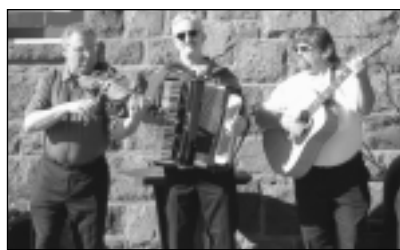
- 2-draw and 3-blow both produce the same note.
- To transition from hole 6 to 7, requires two draw notes in a row.
- After that, the alternating blow-draw pattern becomes reversed to draw-blow

Figure 3. Missing notes & other irregularities.

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