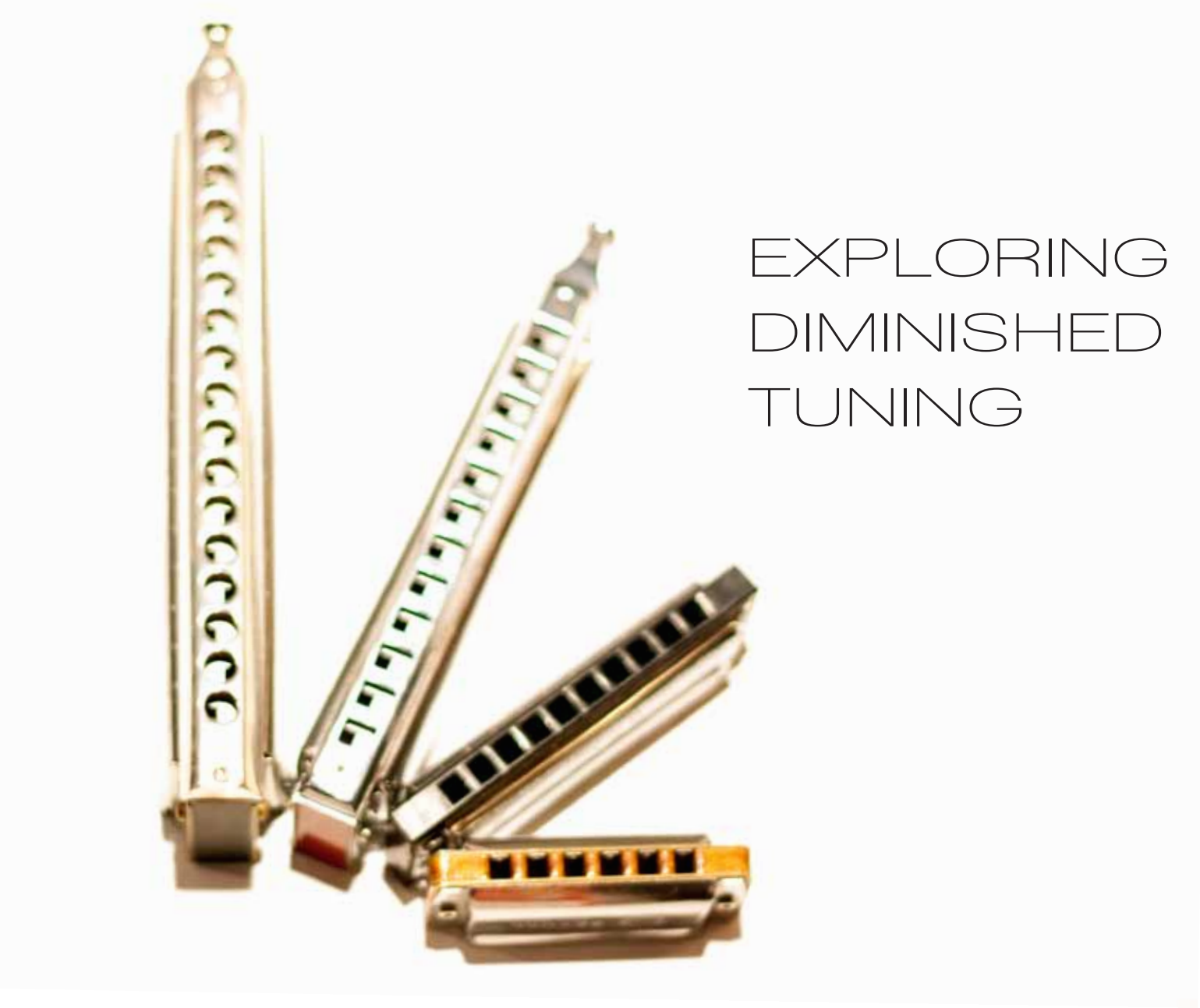

EXPLORING DIMINISHED TUNING

By Jason Rogers

When I looked into writing an introductory article about the diminished tuned chromatic harmonica (aka, "the Dimi"), I found that there wasn't much new to say. Experts such as Pat Missin, Greg Dyer, Brendan Power and Max Greco have already written about the nuts and bolts of the tuning in a concise and complete way. I decided that rehashing what they have written wouldn't be very interesting, so I'm going to try to add what I can by relating some of my own experiences in living with the Dimi for the last ten years.

The Dimi is similar to an off-the-shelf chromatic harmonica such as played by Stevie Wonder, Toots Thielemans and Larry Adler. The difference is that the pitches of the reeds have been tuned to a diminished scale instead of the traditional major scale.

I can't recommend the Dimi over any other harmonica tuning, because there is no one answer as to which tuning is best. It all depends on what style the musician desires. Hopefully this article will give some clues, however, as to some of the advantages of the Dimi.

Symmetric Scale

Some of the most significant qualities of the Dimi are a product of the fact that it is tuned to what is called a symmetric scale. One way to build a symmetric scale starts by equally dividing the octave. Given the twelve tones in the equal-tempered chromatic scale, the octave can only be equally divided into two, three, four, six, or twelve parts.

The diminished scale starts with four equal divisions of the octave into intervals of a minor third: [C Eb Gb A]. Tones can be inserted into the space between each of these four notes to create a scale.

If we insert tones a major second above each of our original notes, we get: [C D Eb F Gb Ab A B]. This scale is commonly called the whole/half diminished scale. I will shorten the name to the diminished scale throughout.

This scale can be seen as two diminished 7th chords positioned a whole step apart:
[C Eb Gb A and D F Ab B], and can be used as the blow and draw chords of a diminished-tuned harmonica.:

	1	2	3	4
Draw	D	F	Ab	B
Blow	C	Eb	Gb	A

I'd like to point out two Dimi tunings that use these chords as blow and draw chords. The first tuning uses the "sharp slide," where the pitch is raised a half step when the slide is pressed:

	1	2	3	4
Draw Slide	Eb	Gb	A	C
Draw	D	F	Ab	B
Blow Slide	Db	E	G	Bb
Blow	C	Eb	Gb	A

This is probably the most common of the diminished tunings, and is the tuning I will discuss further as we go along.

I'd also like to mention one other Dimi tuning here, where a "flat slide" (slide lowers the pitch one half step) is used to fill out the chromatic scale:

	1	2	3	4
Draw Slide	Db	E	G	Bb
Draw	D	F	Ab	B
Blow Slide	B	D	F	Ab
Blow	C	Eb	Gb	A

This layout is sometimes used by players who are most at home on the Dimi diatonic (retuned blues harp with half step bends on every draw note). The flat slide mimics the draw bend notes. We'll discuss this further.

There are a handful of other diminished tuning varieties.† Some are arranged with a half step inserted between our four primary minor third intervals [C Db Eb E F# G A Bb] and arranged as blow and draw chords [C Eb Gb A + Db E G Bb]. Most notable among these is the sharp slide variety:

	1	2	3	4
Draw Slide	D	F	Ab	B
Draw	Db	E	G	Bb
Blow Slide	Db	E	G	Bb
Blow	C	Eb	Gb	A

By all reports, there is no real advantage that either of the sharp slide layouts has over the other, except for one thing – the potential for half-valving.

Half-Valving

Let's start talking about half-valving by taking a look at the diminished-tuned ten-hole diatonic harmonica. We use the term "diatonic" to indicate that the harmonica is basically a retuned "blues harp," but of course, by tuning it to diminished it is no longer "diatonic." It implies that we can use a number of bent notes to achieve notes that are not available on the harp when played straight, and bending can also be used to increase expression.

Those familiar with the blues harp will know that when a draw note is higher than the blow note in the same hole, the draw note can be bent downward to a pitch that is one half step above the blow note. This is true on the Dimi diatonic as well, where every draw note can be bent down a half step:

	1	2	3	4
Draw	D	F	Ab	B
Draw Bend	Db	E	G	Bb
Blow	C	Eb	Gb	A

A full chromatic scale can be played with the addition of these draw bends.

Notice that if we tune the blow notes to C Eb Gb A and the draw notes to Db E G Bb, our blow and draw notes are only a half step apart. This means that there are no half step bends available and that we no longer have a chromatic scale available:

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† For more info, see Pat Missin's "Altered States": http://patmissin.com/tunings/tunings.html and "Pat's Musings" http://www.angelfire.com/music/HarpOn/patsmusings.html. Also see Greg Dyer's Dimi chrom layouts article: http://angelfire.com/music/harmonica/dimichromlayouts.html

No un-valved bends available:

	1	2	3	4
Draw	C#	E	G	Bb
Draw Bend	n/a	n/a	n/a	n/a
Blow	C	Eb	Gb	A

The same principle will hold true if we half-valve our diminished chromatic. If you want a Dimi chromatic that is half-valved, you will have to choose a "wholetone blow/draw" variety.

What does half-valving a chromatic mean? Sometime around 2002 or so, when I was completely new to the harmonica, I read about this concept on the website of Brendan Power. Hearing the sound he got on his half-valved CX-10 "blues harp chromatic" was inspiring. Brendan had taken a CX-12 chromatic, cut it down to 10 holes, retuned it to a blues harp tuning and half-valved it. This way, he was able to play it very much like a normal blues harp except with the added advantages of the slide as well!

This sent my imagination spinning on the possibilities of a half-valved diminished tuned chromatic. I knew that Ed Coogan had developed a jazz style utilizing a fully chromatic scale on the diminished tuned diatonic, so how much more could be done on the diminished tuned half-valved chromatic?

Half-valving a chromatic means that, when starting from a fully valved chromatic, the player removes the valves that cover the blow reed slots. These are the valves on the outside of the reedplates when the chrom is assembled. When a draw note is played, there is no blow valve to block the air rushing past the blow reed, and the reeds are free to interact in the same way they do on the blues harp. However, when a blow note is played, the draw valve keeps air from leaking through the draw reed slot and it plays similarly to a normal valved chromatic, including the normal valved bends that are possible.

A half-valved diminished chromatic is similar to having a C Dimi diatonic that converts to a Db Dimi diatonic when the slide is pressed.

C Dimi half-valved slide out:

	1	2	3	4
Draw	D	F	Ab	B
Draw Bend	Db	E	G	Bb
Blow	C	Eb	Gb	A

C Dimi half-valved slide in:

	1	2	3	4
Draw	Eb	F#	A	C
Draw Bend	D	F	Ab	B
Blow	Db	E	G	Bb

Be aware that the chromatic harmonica that is half-valved must be very airtight in all other respects to minimize the effects of the air loss due to the missing valves.

This is a marvelous breakthrough in the design of the chromatic, allowing new avenues of expression. Not to mention you have only half the valves to give you problems! The late harmonica craftsman Bill Romel asked me to play my half-valved chromatic for him in person, doubting that it would sound good with missing valves, but upon my playing it he responded positively and commented that it sounded just like a normal chromatic. The airtight half-valved chromatic, especially as customized by someone like Brendan Power or Pat Missin, is very easy and natural to play and can sound just like a traditional chromatic harmonica when you want it to - and get those blues harp type of bends as well.

Any intro to the Dimi should mention half-valving because the layout is optimal for it, and not all chromatic layouts are. For example, on the half-valved Dimi, eight notes are bendable per octave. Half-valved bends are available on every draw note. On a half-valved solo-tuned chrom, only four notes are bendable per octave, and only half of the draw notes can utilize half-valved bends.

The one issue I have with even an excellent quality half-valved chromatic is that I sometimes instinctively improvise rather long phrases utilizing as much slide movement and uniform breath direction as possible. When the phrase contains many draw notes, I run out of air more quickly than I would on a valved chrom, so I often choose a fully valved Dimi when I am performing a tune that inspires that kind of phrasing. When playing more blow/draw oriented passages, the half-valved chrom plays great.

The rest of the article applies to valved and half-valved Dimis alike.‡

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‡ For more information on the Dimi diatonic, see Brendan Power's article "Learning Diminished Harmonica Tuning with Phrase Maps": http://www.harmonicaacademy.com/categories/20081221.

For more info on half-valving, see Richard Hunter's interview with Brendan Power: http://www.hunterharp.com/bpower1.html

Enharmonics

One of the defining characteristics of any tuning is its enharmonics. Traditionally, an enharmonic means a note that sounds the same but that is named differently, such as A# and Bb. An enharmonic on the harmonica is a particular note that can be found in more than one place within the same octave. It has more than one "fingering." For example, on a C Dimi, Eb can be played in hole 1 draw slide-in, and in hole 2 blow, slide-out:

	1	2	3	4
Draw Slide	Eb	Gb	A	C
Draw	D	F	Ab	B
Blow Slide	Db	E	G	Bb
Blow	C	Eb	Gb	A

One of the things that makes the Dimi so nice to play is the even spread of four enharmonics. The C, Eb, Gb and A can be played in two different ways each: blow, and slide-in draw. The four enharmonic notes come from the intersection of the C diminished and Db diminished scales.

Finding a melody that incorporates enharmonics is advantageous for the player because it provides more options to choose from. Enharmonics may allow the player to play a series of notes with the same breath direction for a smooth legato sound, or with a breath change between each note, for uniform articulation. It may allow a phrase to be executed faster, if breath changes can be eliminated, or it may allow a phrase to be played more slowly by providing more breath changes so the player doesn't run out of air. On the other hand, there are players who have great success with the augmented tuning, which has no enharmonics at all, so this is just a matter of preference. I feel that the Dimi, with its evenly spaced enharmonics, is great for playing legato, flowing lines in any key.

Diminished - A Mode of Limited Transposition

The diminished scale falls under the category of the Modes of Limited Transposition (MOLT). A scale or mode has limited transpositions when transposing the scale results in the same set of notes as the original.

For example, the C diminished scale [C D Eb F Gb Ab A B], when transposed up a half step, results in a new, unique, set of notes starting on Db [Db Eb E Gb G A Bb C]. When transposed up a whole step it results in another new set of notes starting on D [D E F G Ab Bb B C#]. However, when the original diminished scale is transposed up a minor third, the set of notes that results is exactly the same as the original [C D Eb F Gb Ab A B] = [Eb F Gb Ab A B C D]. The diminished scale can be transposed only three times. All other transpositions result in a redundant set of notes:

C dim = Eb dim = Gb dim = A dim
Db dim = E dim = G dim = Bb dim
D dim = F dim = Ab dim = B dim

All of this has very practical implications when playing the Dimi. Because the diminished scale repeats itself at the interval of a minor third, we find that any phrase played in one key (for example, C) will be played with exactly the same "fingering" in the keys of Eb, Gb and A. The same is true of Db E, G, Bb and D F Ab and B. We say that the diminished tuning has only three "patterns."

As I progressed over the years, I sometimes found phrases popping out unexpectedly easily in less familiar keys because I had played them before in a key I was more familiar with! This kind of easy gain is a joy to experience. I was concerned, however, when first taking up the Dimi, that I would end up repeating myself while improvising because phrases would be the same in four keys. This vanished for me as a concern as I got into it because I was, and still am, discovering new ways to play in each key as my experience and technique grow.

Key Agnostic

The symmetric scale tuning is an interesting departure from most standard harmonica tunings, which are based around a diatonic scale and chords. On a traditional tuning it is convenient to play songs in the harmonica's home key or a closely related key but more difficult to play in remote keys. The diminished tuning, due to its symmetrical nature, however, aligns itself equally well (or not well) with any key. As Pat Missin says, "Instead of having 'easy keys' and 'difficult keys', all keys are equally as easy/difficult." (See http://www.angelfire.com/music/HarpOn/patsmusings.html#molt) It turns out that there are three enharmonics available in four keys and two enharmonics available in eight keys. Each of the three patterns has its own personality and advantages, but none are considerably harder than the others.

Because of this, the Dimi is great for playing jazz and other relatively complex music because it is key agnostic. This is convenient when navigating the frequent modulations found within even one song form of a jazz tune.

It also means that the player can feel equally at home on the same harmonica no matter what the key of the tune may be. This aspect of the Dimi has been a good friend to me. Whether playing Christmas

carols with my mother at the piano, or playing with professional improvisers, I find it reassuring that I can handle any key relatively easily. (Tempo may be a different matter!) I know that the key of Gb is as easily played as C, or that B is as easily played as F. This is quite a different experience than my other main instrument, the trombone! A shift of a half step from Bb to B or F to Gb can create a very different experience.

On the other hand, it also means that a simple diatonic tune involves some slide work, and does not lay as conveniently as it might on a diatonic harmonica. Before getting used to playing the Dimi, I felt like I was trying to walk a straight line in a round room. Every minor third or so it felt like the Dimi was taking me to a new key and I had to use the slide quite a bit to stay in one key area.

As I progressed and learned this instrument on the bandstand, I would notice interesting tendencies. I would execute a difficult improvised passage to my satisfaction, and then as my ear led me into a more diatonic scale or interval pattern I would find myself tripping over it! This seemed strange to me, but upon thinking it over, it was clear that some of my complex phrases were more in line with the tendencies of the Dimi layout than the diatonic phrases were. It has become much more natural to me now.

This is why I advocate a "use the right tool for the job" approach to choosing a tuning. If I wanted to play traditional folk music that is primarily diatonic, I would choose something close to a traditional tuning or perhaps a modified tuning that has been optimized to play this style. An Irish tune can be played on the Dimi, but it may not flow as naturally as on some other tunings.

For the same reason that the Dimi is key agnostic, some players have mentioned that the Dimi doesn't feel right to them because they can't find "a resting place," such as a home chord or key to refer back to. I found myself looking for a way to intuitively understand how tonal music maps onto this symmetrical layout. This will be a topic for a further series of articles or publication.§

Predictability of Intervals

The symmetric nature of the layout makes interval jumps much more predictable than they are on traditional tunings. Max Greco has a nice diagram of the basic intervals making up the Dimi in his article "How Augmented, Diminished and Wholetone Layouts Really Work," p. 8: (http://www.harponline.de/molt.pdf)

When I was new to the diminished tuning — and the harmonica — I found myself in the position of playing a very exposed part in Jordan Hall at the New England Conservatory of Music. I was playing in a trio with the wonderful musicians Ran Blake, pianist, and Dominique Eade, vocalist. The part I would play had been composed and practiced. I would not do any improvising. I was uncertain enough to have put a small piece of tape above the hole of the first note I needed to play. I knew if I got the first note correct I would then be able to play the rest of my part, but if I missed it, I would be in trouble!

As it turned out, the first note went OK, and the performance went almost as planned. Somewhere in the last 30 seconds of the piece, however, Ran started quoting a tune I knew by ear but hadn't ever played before. My musical ear jumped on the melody and in an improvisational spirit, I played it along with Ran. Luckily, my gamble paid off, thanks to the fact that the Dimi layout was predictable enough to find the notes even though I was quite unfamiliar with it! Only later did it occur to me what a mess that might have been! This advantage works just as well in the course of reading music as it does when playing by ear.

One downside to the symmetry of the Dimi is that I have, once in a while, while improvising live, found myself on a hole that I had not intended to be on. If the band is a little loud, the music is moving quickly, and my ear finds itself momentarily disoriented, I can find it hard to regain my place on the harmonica. There are no absolute signposts on the Dimi as to where you are, as there are on the solo tuned chromatic. At this point, if all else fails, I may have to reference the bottom or top end of the chromatic or sneak a peek at the harmonica mouthpiece. This is a rare occurrence, however, and the benefits far outweigh the downsides.

Similarities between Dimi, Solo Chrom and Blues Harp

There are some interesting similarities between the Dimi and solo tuning and the Dimi and the blues harp, which I will touch on very briefly. This might be helpful to those who are currently adept at traditional tunings and want to experiment with the Dimi.

Compare one set of possible fingerings for the notes C E G on the solo and diminished tunings (b=blow, d=draw, ' = slide in, #=hole number).

Solo: 1b 2b 3b

Dimi: 1b 2b' 3b'

Compare one set of possible fingerings for the notes D F A B on the solo and diminished tunings.

§ For more information on the advantages of the Dimi layout, see Greg Dyer's article at: http://www.angelfire.com/music/harmonica/dimichromintro.html

Solo: 1d 2d 3d 4d
Dimi: 1d 2d 3d' 4d

These can be combined into a C Major scale and the similarity between tunings extends to any mode of the C Major scale. This is only a partial list of similarities.

Notice the similarity of the placement of the draw and blow notes between the half-valved Dimi and the blues harp.

Draw notes on blues harp:
G B D F A B D F A
2d 3d 4d 5d 6d 7d 8d 9d 10d
Draw notes on half-valved Dimi:
G B D F A B D F A (B)
3d(bend) 4d 5d 6d 7d' 8d 9d 10d 11d' (12d)
Blow notes (C E G) on blues harp:
C E G
4b 5b 6b
Blow notes on Dimi:
C E G
5b 6b' 7b'

Analogies can be made between position oriented playing on the solo tuning and the blues harp (second and third position are good examples) and the Dimi. Early on, I spent some time experimenting with learning one or two Paul Butterfield and Charlie Musselwhite solos on the Dimi half-valved. At times I experimented with playing through a Harmonica Honker brand microphone into a Fender Blues Junior amplifier trying to get a blues harp type of sound. If making this kind of comparison inspires the player or helps transition to the Dimi then it is useful, but ultimately I don't feel that it is necessary in getting to know the Dimi.

In summary, I would say that the Dimi is highly conducive to playing jazz, blues and other improvisational music due to its symmetric tuning, its multiple and evenly spaced enharmonics, its ability to be half-valved, and the prevalence of the colors of the diminished scale in the jazz idiom. Shades of diminished are not limited to the typical application over dominant chords, but have a much greater range of use. To be continued….!

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Before you know it, it will be August 2012 and SPAH convention time in Irving, Texas on August 14-18, 2012. Now is the time to start thinking about how you can enhance your own SPAH convention experience by presenting a seminar, workshop or lecture on the harmonica subject of your choice. Share your harmonica passions, skills and knowledge with hundreds of like-minded people. Knowledge only endures if it is shared. Our harmonica community has been and continues to be unique in the willingness of its members to share. You will as well, still have ample opportunity to attend the many other seminars offered.

Yes, you will have to put in time and effort to ensure that your presentation is well planned and run, as well as informative and enjoyable for those attending. However, the satisfaction of contributing and sharing is well worth the effort. Just ask some of the many, your own friends in the harmonica community, who have already done so.

So if you are up to the task and the rewards, let me hear from you sooner rather than later. Now is the time to start planning. Email me at mwewers@rogers.com, or phone me at 416-465-9369, or write to me at 1013 Logan Ave., Toronto, Ontario, M4K 3E6, Canada, and I'll do what I can to make the process easy for everyone.

Manfred Wewers
SPAH Seminar Coordinator