

LIVING AMONG THE PENTATONICS [PT. 1]
[revised 31 -5 -2025]

I have to thank Lou Harrison for steering my compass back to pentatonics and I dedicate this little paper to his great spirit as one who lived among them.

Over the years, I have relied on many different sets of elements as primordial musical building blocks. From one to two to three and to four note groups, depending on the tuning I was working in. At this point I have spent maybe an embarrassingly long time with pentatonics. I think they are basically undervalued if not misunderstood in their potential.

Less like atoms or molecules, with pentatonics there something more like living cells emerges in their ability to sustain and perpetuate themselves musically. Not only can we find examples of a single pentatonic holding an entire composition, or an evening of compositions but whole cultures for centuries.

A few cultures have expanded their pentatonic language by common-tone modulations upward and downward adding two tones making a 7 tone scale. Thus we have three pentatonic scales forming a heptatonic. Another example might be that of Japan where the heptatonic scale give rise to a cycle of pentatonics subsets there the focus ended on the more atypical variations in their qualities and intervals. Indian music has predominately used both pentatonics and heptatonics for thousands of years.

The keyboard is the point where the two forms first acted as complementary sets of black and white. The 12 tone scale growing out of the heptatonic scale extended to a least 6 keys. This complementary framework have been the lead I have followed.

In order to be useful to those working in different tunings than my own, my example here choose the familiar 12 tone scale from which others can apply to the scales of their choice. These patterns seem to work in with Just and unequal spaced scales.

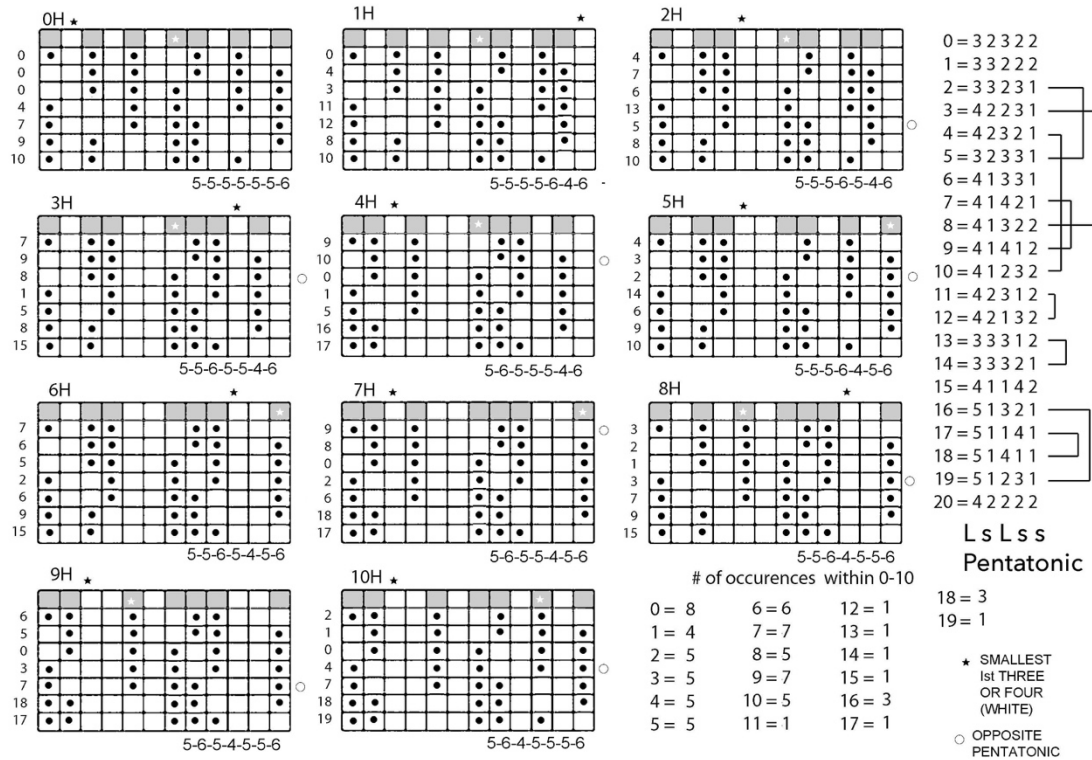
MEMBERS OF THE PENTATONIC TRIBES

The simplest pentatonic and heptatonic scales are those found by the succession of fourths [or fifths]. The classic C D E G A is formed by starting the series on E (E A D G C) with the latter starting on B we get the B E A D G C F Each has a disjunction, though atypical in size found between C and E in the first case and F and B in the second. It is formed of the same number of scale steps as the generating interval regardless making the scale cyclic. This cyclic property is what defines our more restricted meaning of “scale” while our pursuit entails the limit in variations we can go while still remaining cyclic properties.

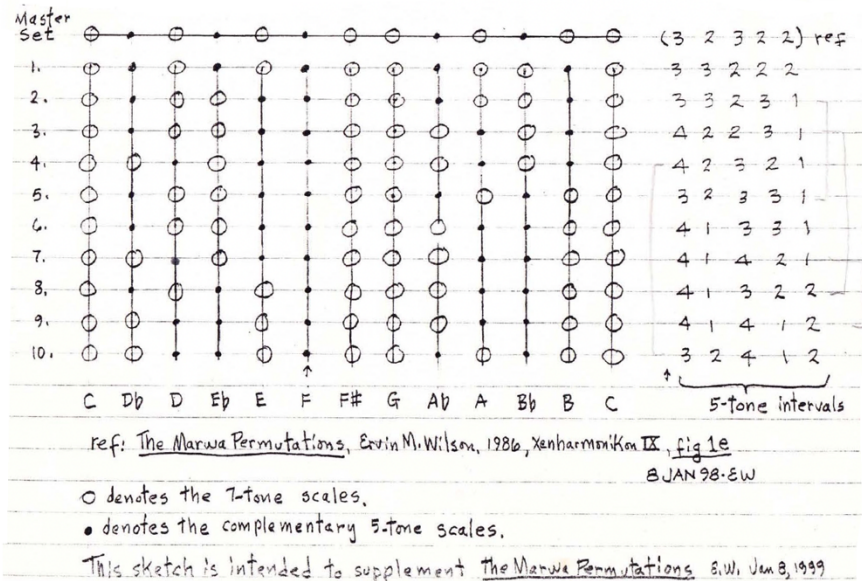
Wilson* notes that practically all the heptatonic scales of North India are modes made of a chain of fourths that have one augmented fourth or those with 2 augmented fourths with one diminished fourths. I extract those from his article. Followed by a chart where he outlined the complementary pentatonic

* Xenharmonikon 9 available here- <https://anaphoria.com/xen9mar.pdf>

This same set of scales was found at the end of his original Moments of Symmetry article without comment



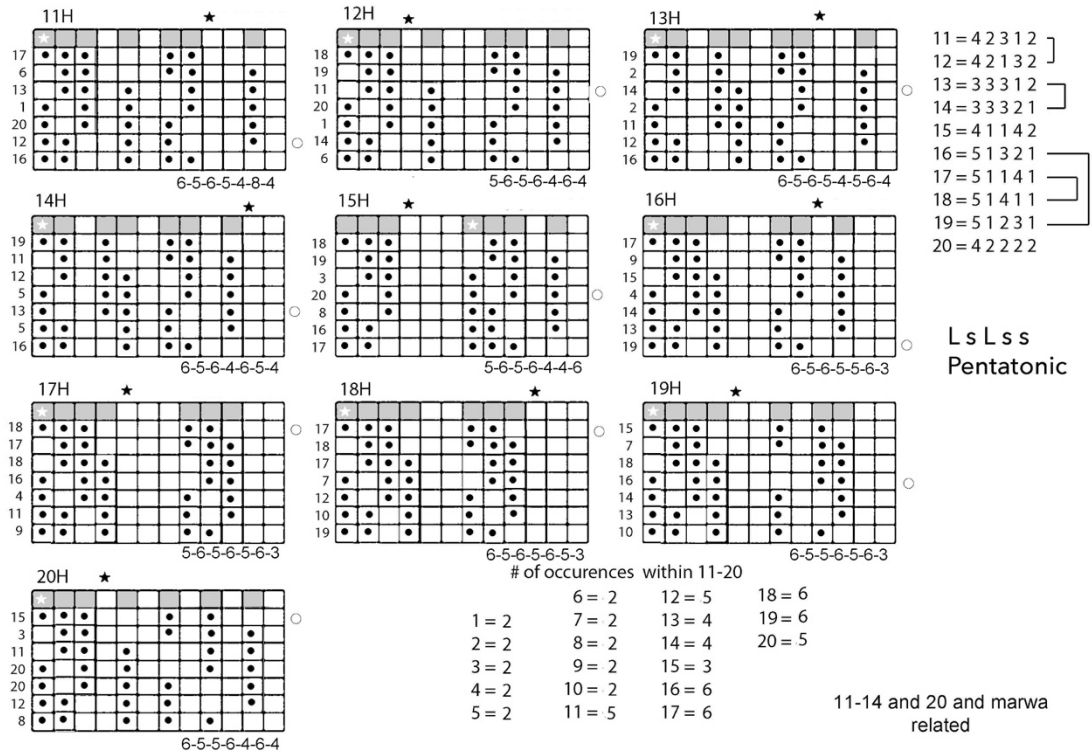
This chart was a personal communication from Wilson when I first suggested the idea.



If the classic scale (diatonic) from the previous page is designated as 0. and the numbers 1.-10. above as the designations of these new scales, we end up with 11 heptatonics and 11 pentatonics. P and H are used after each number to designate whether it is a pentatonic or a heptatonic.

In Wilson's original MOS paper, he outlines the secondary sub-moments, a method he was shown by Tanabe on how the Japanese came to their pentatonics involving small semitones. Similar use has been observed within the heptatonic scales of the Indonesians and African Ballophones where different diatonics are extracted from a set of 7. If we apply this method to the newer 10 heptatonics above, 9 new pentatonics emerge as we rotate through the pentatonics of each.

The complement to these 9 pentatonics results in 9 heptatonics of which 4 are also Marwa permutations, here involving two additional closing intervals. These containing one more (3) augmented 4th are not yet used in North India. Out of this set of 19 heptatonics we discover only one new pentatonic subset. This happens to be an omitted Marwa Permutation missed as a complement of a pentatonic. The 7 tone complement of this in turn that gives us no new pentatonics subsets.



To recap, taking the heptatonics found in North India which correspond with the first layer of Wilson’s Marwa permutation, numbered 11 (0.-10).. Both the complementary pentatonics of these 11 plus the embedded pentatonics numbered 20 (11.-19.). Thus from these 20 pentatonics an additional 9 complementary heptatonics bringing its number to 20 also. Only one more pentatonic was found in 3 Of these heptatonics. This 21st pentatonic yielded a new heptatonic complement but it contained no new embedded pentatonics subsets. Since we cannot proceed any further than these 21 pentatonics and heptatonics we are justified considering it a closed set. This set is less of equal elements but of a subtle hierarchy. These distinctions become more important in following documents

Ref: Erv Wilson. Moments of Symmetry. <https://anaphoria.com/mos.pdf>

Erv Wilson. Marwa Permutations <https://anaphoria.com/xen9mar.pdf>